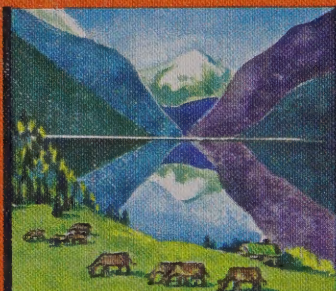


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AROUND OUR WORLD



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A STUDY OF COMMUNITIES

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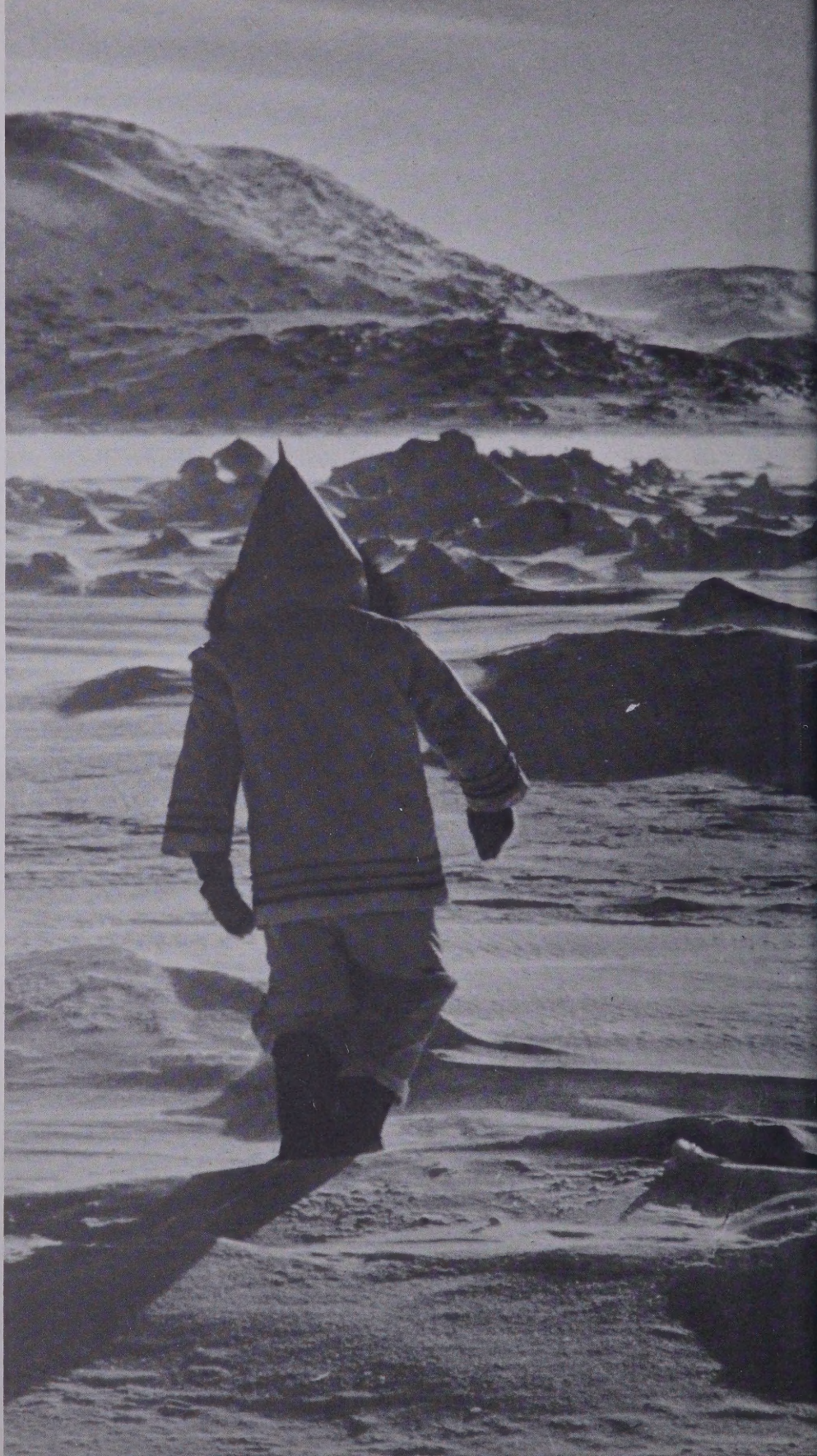
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AROUND OUR WORLD

A STUDY OF COMMUNITIES

GINN AND COMPANY, TORONTO

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Preface for Teachers

Geography is not a mass of information, but a point of view. Above all it is an observational science, reviewing a wide range of material. For the teacher of early elementary pupils, the need to lay a factual basis before proceeding to fruitful generalization has often been a source of difficulty. The authors of *Around Our World* have attempted to meet this problem in a unique manner by drawing geographical concepts from an area the child knows well — his own community.

The child needs a basic vocabulary of such terms as hill, plateau, rainfall, transportation, occupation, resource, shelter, agriculture, and vegetation. In addition, he must understand concepts, such as the difference between weather and climate, and what is meant by an industry. This groundwork can be formed from the child's own experience, preferably reinforced by class visits and excursions. To go and look is worth volumes of reading.

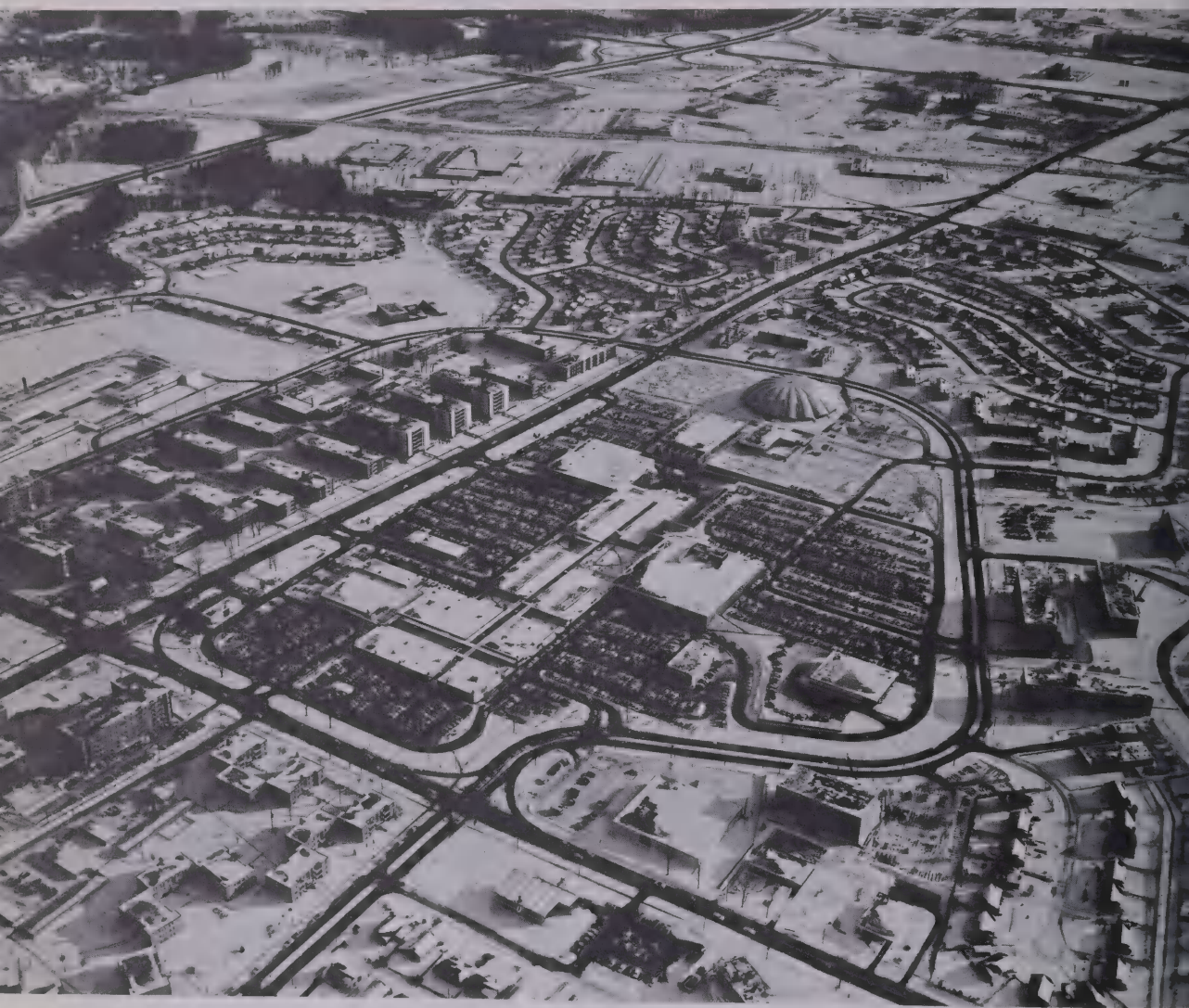
Once the nature of a geographical point of view has been established, *Around Our World* leads the pupil through a series of sample studies, chosen to reflect a range of communities contrasting in climate and way of life. The authors cannot emphasize too strongly that these studies are not intended as an anecdotal travelogue. Throughout them, teachers and pupils should make continual reference to concepts developed in the study of the home community. In this way pupils should develop patterns of enquiry appropriate to all parts of the world. Having realized, for instance, the significance of climatic features in their own community, they may ask, "What are the climatic features of the area I am about to study? How do they affect life there?" Likewise, other aspects of geographical enquiry may be repeated.

The sample studies have been so selected that, within the range of ability for which they are intended, they develop progressively more subtle and complex geographical ideas. Thus, to give but one example, in early chapters pupils examine the basic tasks of finding food and shelter, whereas in later chapters they are led to consider problems arising from overpopulation.

An important feature of *Around Our World* are the maps, charts, diagrams, and pictures. These are an integral part of the text. Through the book runs a "Map Shop" showing how to read and make maps; similar attention is paid to charts. Today no geography book is without pictures, yet pupils often look without seeing. *Around Our World* provides a Picture Study Guide which aims to instil in the pupil the habit of thoughtful analysis of all illustrations. Pupils should be given every opportunity to use these graphic techniques upon materials they have collected.

Geography is never static, and the authors have emphasized the ways in which all communities are subject to change. *Around Our World*, with its Teachers' Manual and Workbook, will provide a complete core program, but it is essential to keep the material under constant review by reference to magazines, newspapers, radio, and television. Pupils should be encouraged to help by making charts and maps, devising research projects, and by keeping scrapbooks.

The authors hope that *Around Our World* will provide its readers with a sound factual basis for two realizations. In the first place, pupils should develop an understanding of the vast differences in climate, landscape, and ways of life to be found on the earth. Secondly, through geographical studies they should understand that in man's universal necessity to harmonize with the forces of nature there is an underlying unity.



A view of a modern Canadian community. Notice the shopping centre with its parking area and walkways; apartment houses, large and small, on the main streets; single-family houses on quiet streets away from through traffic; the industrial area in the background with a railway running through it and an expressway near by.



Community Geography

EXPLORING THE WORLD AROUND US

On your way to school this morning what did you see? Cars, trucks, buses, fishing boats? Heavy traffic, or quiet roads? Houses, stores, barns, or rows of houses, apartment buildings, office buildings, factories? Trees, hills, mountains, level fields? These help give you some idea of what geography means. Open your geography book, here and there, to see what else it is about. You will find maps of large or small parts of the earth, and pictures that show people of different communities at work and play. As the year goes by you will learn to read maps and pictures as easily as you read printed words. These maps and pictures all tell us about the world we live in. Now you have found what geography is about — *the earth, and the people (ourselves too) who live on it*. Most important of all, in the study of geography we learn how natural

conditions on the earth affect people's lives.

In your book find three pictures that show people in different parts of the world. Do any of the pictures you have found show how you live? You may think that the way you live is quite ordinary. If some of the people about whom you will read were to visit you, they would think that many of your ways are not at all ordinary, but very strange indeed. Studying geography will help us to understand *why* people live as they do.

Studying your book is only one way to learn geography. Someone wise has said, "Geography is best learned with your boots." What did he mean? The best way is always to see for yourself. Try to look at the world around you with your mind as well as with your eyes. Then try to find the reasons for what you see.



Your Community

The best place to start your study of geography is your own community. Just what does “your community” mean? It is the place where most of your family’s activities take place and where most of its needs are supplied. Look at pictures 1, 2, and 3. What differences do you find? Do any of these scenes look like your community?

The part of your community that you know best is your neighbourhood. We will call your neighbourhood the place which has in it the homes of all those who go to your school.

Studying Communities

In this book we will study many communities, beginning at home and moving on to far-away lands. To make our work easier we will follow a study outline for each one. When we are visiting a community we will study first the natural conditions — *land* and *climate*. Knowing these will often help us to understand why people live as they do. Remember that *why* is the most important word in the study of geography.

1. Montreal, Quebec, is an example of a city community.
2. Suburban communities are found near the outskirts of many city communities.
3. Away from the cities are farms and town communities.



How does this body of water affect life in this community?



Why would it be difficult to build a railroad across this land?

The Land

Have you ever thought about the importance of the shape and nature of the land to the people who live on it? There are many things we can tell about the land in your community. Ask yourself these questions about your community:

1. Is the land flat, hilly, or mountainous?
2. What bodies of water (rivers, lakes, and streams) are in your community?
3. Has the shape of the land had anything to do with the position of railways, streets, buildings, and bridges in your community?
4. Are there any places in your community where plants will not grow?

What kind of land is this?



What is this land being used for?



MAP SYMBOLS

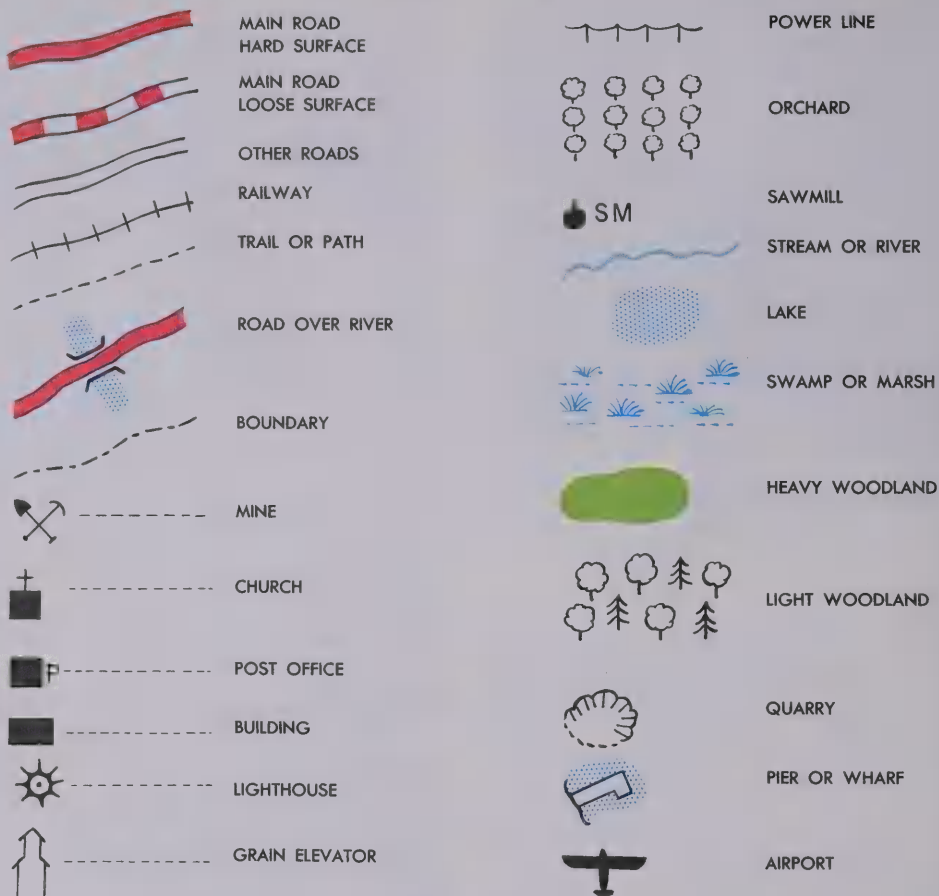


Figure 1.

PROJECT 1

Let us put what you find out about your neighbourhood on a map. The steps in making a neighbourhood map are:

1. Lay a large sheet of paper on your desk or on the floor
2. Place an X in the middle of the paper for your school.
3. Mark an E for East on the side of your map where the sun rises. Then mark in North, South, and West.
4. Draw in the streets or roads around your school.

5. Draw the street or road to your home.
6. Draw in the rest of the streets and roads on your map.
7. The drawings in Figure 1 are used on maps as *symbols*, or signs, and are explained in a *key*. Use some of them, if you can, on your map.
8. Make a key for your map.

If your community looked like Figure 2 on page 5 your map might look like Figure 3 on page 5.

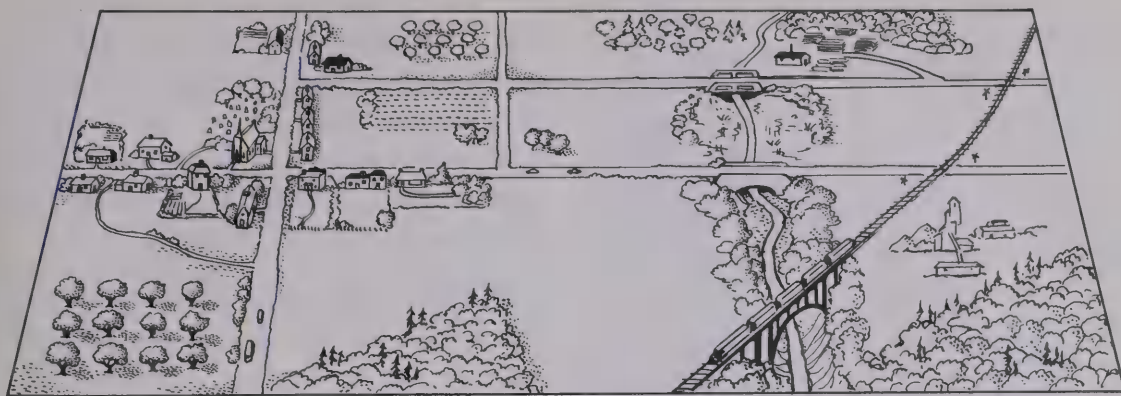


Figure 2. View of a community

Figure 3. Map of the same community



The Climate

"Fog clearing slightly tonight, becoming thicker Sunday, winds light. Low tonight 45 degrees, high tomorrow 65 degrees."

This is a weather forecast for a Canadian city. The weather may change from day to

day. The general weather conditions that we expect over a long period of time are known as the *climate*.

When we look at the climate of our own community we should ask ourselves these questions.

1. How much rain and snow falls each year? (Discuss how you might find this out.)
2. Which are the coldest months?
3. Which are the warmest months?
4. How many months are warm enough for plants to grow?
5. From which direction does the wind blow most frequently?

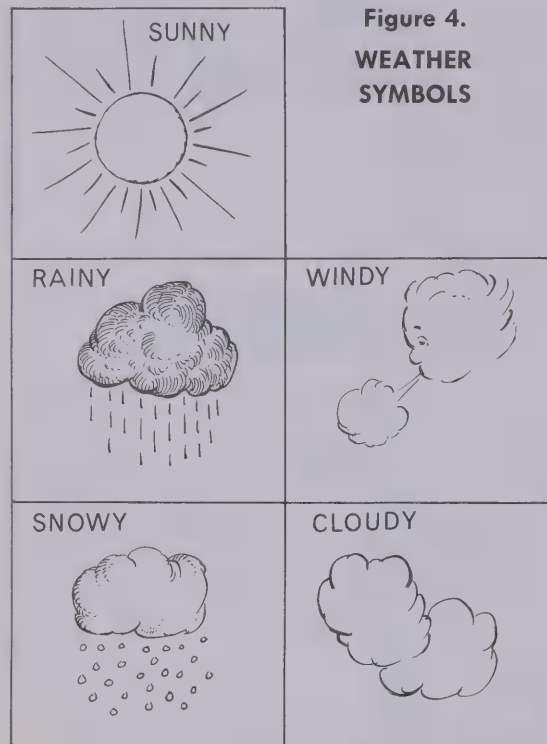


Figure 4.
WEATHER
SYMBOLS

PROJECT 2

Let us start a Weather Chart for your community.

1. Look at a calendar for this month.
2. On a large paper make a copy of this calendar.
3. Listen to the radio, watch television, look at the newspaper, and watch on the way to school for the following information:

Is it sunny, cloudy, or foggy? What is the highest temperature for the day? What is the lowest temperature for the night? Is it raining, or snowing? Is it windy? What time does the sun rise? What time does the sun set?

You may use *symbols* to help you. Figure 4 shows some that other classes have used.

One day on a weather calendar could look like Figure 5.

Keep a record of each day's weather for a whole month.

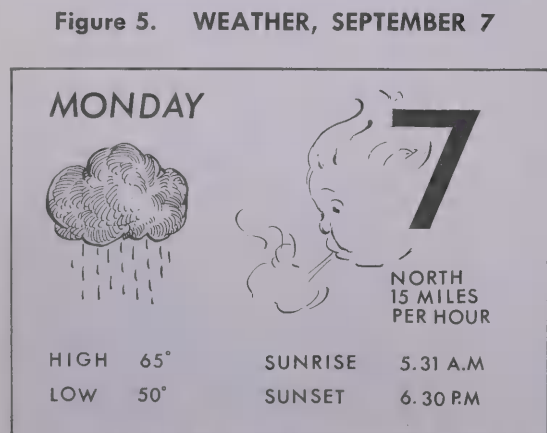


Figure 5. WEATHER, SEPTEMBER 7

Factors

The *land* and the *climate* in a community affect our needs and activities — the food we eat, the crops we grow, the homes we build, and the jobs we work at. We may call these needs and activities *factors* in the life of every community, and we may use the word “factors” to help us remember them:

- F is for *Food*
- A is for *Agriculture*
- C is for *Clothing*
- T is for *Transportation*
- O is for *Occupations*
- R is for *Resources*
- S is for *Shelter*

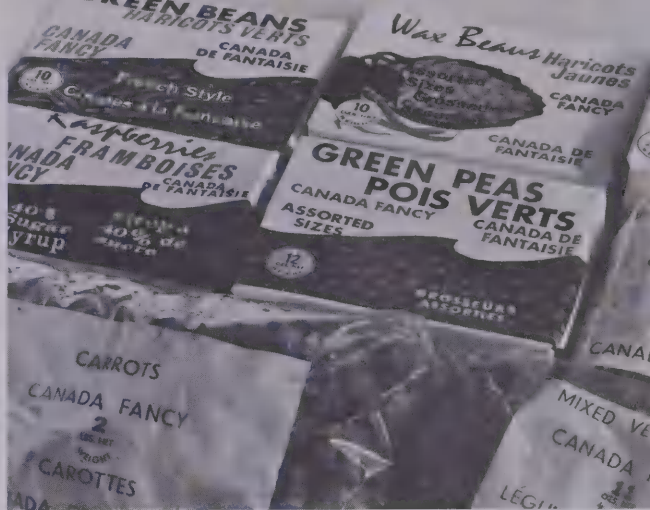
Food

FACTORS

If you moved to a country where the land and climate were very different from that of your present home, you might have to change your eating habits. Most of us become accustomed to eating certain foods, and think that nothing else would suit us. But some foods that Canada produces cannot be had in some other parts of the world. People in hot, wet countries do not often eat bread. Those in very cold lands may never have a fresh vegetable. Many people never eat meat or dairy products.

Canadians are accustomed to eating such foods as meat, milk, cream, and eggs because these come from Canadian farms and can be had at all seasons. Why do most Canadians eat bread every day?

In which provinces of Canada would you be most likely to see a packing plant such as this?



These foods are preserved by freezing. How else can food be preserved?

Where does the meat your family eats come from?





Can foods such as vegetables and fruits be had in your neighbourhood all year round? During the winter they may be bought canned, frozen, or as preserved in cold storage. In a few parts of Canada foods like tomatoes and cucumbers are grown in hothouses both summer and winter. Particularly during the winter, many fresh fruits and vegetables are *imported*, or brought in, from warmer countries.

DO

1. Make a list in your notebook of all the foods that your family has eaten in the last twenty-four hours.
2. Underline with a red pencil those foods in your list that are produced in your community.
3. Circle those foods in your list which are never grown in Canada.

Are there many different foods in your list? This is often true for Canadians, especially those who live in cities. Did you circle such things as coffee, tea, and oranges? A visit to a roadside stand, to a market, warehouse, or store, or even a look at the labels on the goods in your mother's cupboard, will help you to find out where many of our foods come from.

Agriculture

FACTORS

Using the land to grow crops or to raise animals is called *agriculture*. Over half the world's people live on farms. Depending on the land and climate they may grow

What agricultural products are suggested by each picture?

crops, or raise animals, or do both. They may grow only enough for their own needs, or they may make money by selling what they raise. We are dependent on agriculture for almost all of our food, and for the materials to make many other useful products too. Can you think of some of these?

DO

Read each of the following stories. Write down the name of the agricultural product described.

1. Bobby looked out across the golden fields. It was harvest time. The heads on the stems were swollen with fat hard seeds.
2. A machine is used for cutting. It chops down the stalks and *ears* together and cuts them into smaller pieces.
3. Billy picked the green, hard fruit from the trees. It didn't seem possible that these would ripen into red, sweet . . .
4. The herd moved slowly over the fresh, green pasture. Off to the left a lost calf cried for his mother.
5. "Gobble, gobble, gobble," was the only sound to be heard from the pen.

Clothing

FACTORS

Look at the pictures on this page. What seasons are the people dressed for? What differences are there between the clothing that you wear in summer and fall and that you wear in winter? Why do you not wear the same kind of clothing for all seasons? As you read about other lands you will find that a variety of clothing is not necessary everywhere. What people from other lands often find strange about our clothing is that we need so many different kinds.



What special kind of clothing must be worn at this time of year?

DO

Copy the following chart headings into your notebook and fill in the information for all four seasons — spring, summer, fall, winter.

SEASON	CLOTHES I WEAR	WHY
?	?	?

What other kinds of clothing are needed in this season?





In what parts of Canada would you probably find the kind of transportation shown here?

What problems have been overcome by this kind of transportation?

Transportation

FACTORS
▼

“Transportation” means the moving or carrying of people or things from place to place. What methods are used in your community? Goods that are moved may go by train, by truck, by plane, or by ship. What you see will depend on where you live. You may see refrigerator trailers, and trucks carrying food, live animals, or poultry to the city. You may see tank trucks carrying milk or oil. You may see ships carrying wheat or fish. You may see huge trucks loaded with sand, gravel, or other building materials.

Keep watch for a day or two on the trucks in your community. Can you tell what loads they are carrying? Where are they going?

Goods may travel in many different ways. You may find out about the loads carried in your community by doing some of the following things:

1. Visit a freight office.
2. Visit an airport.
3. Visit a harbour.
4. Visit a railway station.
5. Visit a truck terminal.
6. Talk with people that work in or have visited any of these places.



With the help of the picture explain what is meant by "piggyback service."



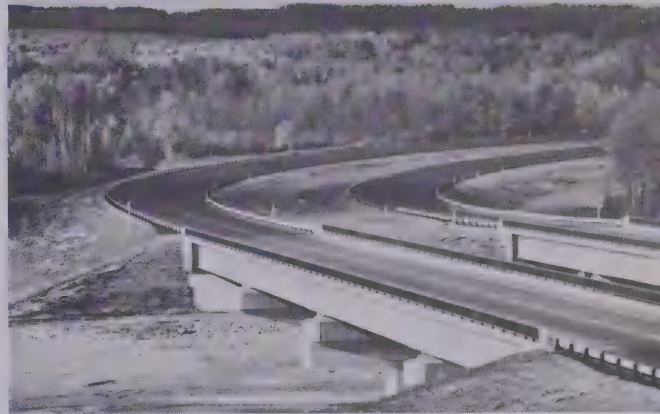
DO

1. In your notebook copy this chart and fill in the spaces that tell about your community.

TRANSPORTATION IN OUR COMMUNITY

LOADS CARRIED	BY
?	Truck
?	Train
?	Ships
?	Planes

What loads would be carried by vehicles using the road system shown below?



2. Prepare two "arrow charts." (See Figure 6 below.) On one, paste magazine pictures which show loads that leave your community. On the other, paste pictures which show loads that come into your community.

3. Now place each of these charts on the side of your neighbourhood map where it belongs.

Only the largest and most crowded cities have subway trains travelling underneath the streets. Why?



Figure 6. Arrow chart of exports and imports





What occupation is shown here?

What other workers will be needed before this fish can be served in a restaurant?



Occupations

FACTORS

What are some of the jobs in your community? Are there drivers, firemen, policemen, carpenters? An *occupation* is a person's daily job.

Why do people work? The chief reason that people work is to get the things in life they need, for themselves and for their families.

The kinds of work done in different parts of the world are quite different. In some places the people raise all or much of the food that they need. They build homes with the help of neighbours, and make the material from which the family clothing is made. Often they have more than they need of some things and not enough of others. They can then trade the goods they have in abundance for those that they lack.

Life today is usually not simple. Most people, especially those who live in a city, do not produce their own food and clothing. They do not build their own homes. Instead, they work to earn money with which to buy the things they need.

Do you think that the *land* and the *climate* have anything to do with what people need and the kind of work they do?

PROJECT 3

Survey of Occupations

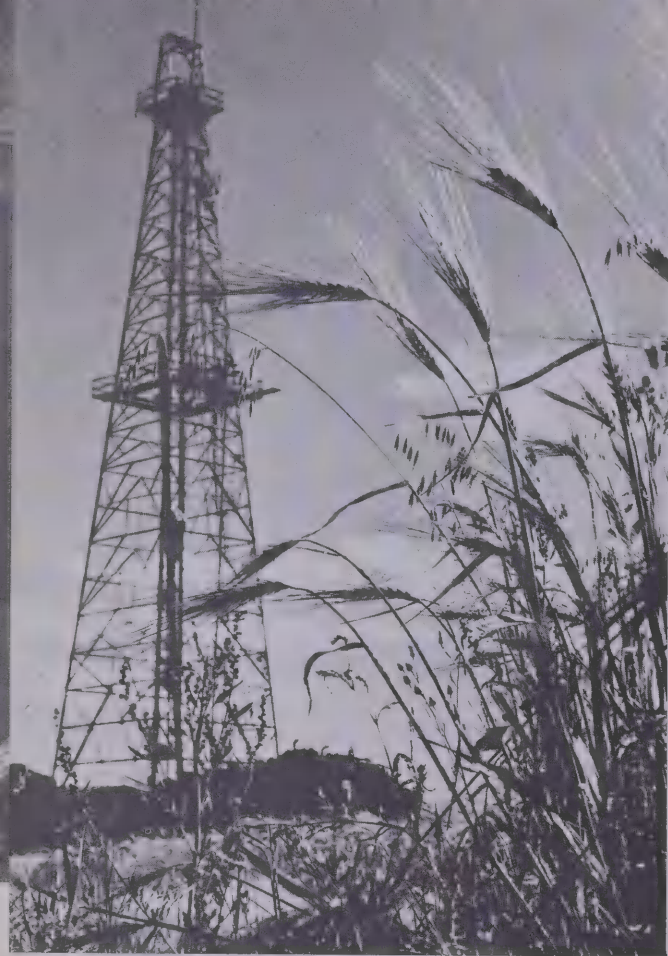
Much information about your neighbourhood cannot be found in a book. You

can sometimes find such information by working on your own.

Talk to as many pupils as you can to find out what jobs their mothers and fathers do. Keep a list of those you speak to and their answers. Then make a list of the different kinds of jobs mentioned and the number of people reported to be working in each.

These men are constructing a new building. What other kinds of occupations are there in the construction industry?





Can you name two natural resources in this part of Canada?

Resources

FACTORS
▼

The things that nature has supplied to each community are known as its *natural resources*. Some of Canada's important natural resources are fish, oil, forests, and minerals, as well as soils and water.

The work that is done in your community will depend largely on the resources in your community. If you are near the ocean, fishing will be an occupation. If you are in a community where there is oil, getting oil from the earth will give many people jobs. There are many different jobs in a city because of the many natural resources that are brought there to be made into goods or to be exchanged. We must be careful to use our resources wisely.

Let us look at the resources in your community.

14

What use can be made of this waterfall?



Forests provide Canadians with many materials. Can you find a sawmill, log booms, sawn planks, and workmen's quarters?

Community Resources

1. Is the soil in your community especially good for growing a certain crop?
2. Does your community have forests used for lumber?
3. Are there any oil or gas wells in your community?
4. Are any metallic ores such as iron, nickel, or copper mined in your community?
5. What animals or fish are reared, hunted, or caught in your community?
6. How are water resources used in your community? Where do houses and factories obtain their water supply?
7. Is your community well known for manufacturing? What products are produced and exchanged?



15

Minerals usually have to be transported from where they are found to where they are used.





What natural resources **are** shown here?

DO

1. In your notebook write the heading *Our Community Resources*. Under this heading write all the resources you think are found in your community. (If you live in a city or town, include the area surrounding it.)

2. Make a symbol to put beside each resource. Some symbols might look like those in Figure 7.

Figure 7. Some resource symbols



Good soil



Water



Oil



Lumber



What might each building be used to shelter?

Shelter

FACTORS
▼

All people need a shelter of some kind, although it need not be a house. It may be a shelter from heat or cold, rain, snow, or wind. It may be built in many different ways, but it is still a shelter. In some parts of the world it is not a building at all, but a cave dug underground or in the face of a cliff or in a bank of earth.

Most Canadians live in homes that are well and carefully built.



DO

1. Draw a picture of your home as you see it from the front.

2. In your notebook copy this chart and fill in the information about your home.

MY HOME

PARTS	MATERIALS	WHY
Roof	?	?
Walls	?	?
Basement	?	?
Windows	?	?
Heating	?	?

Compare the advantages and disadvantages of living in apartments and living in ordinary houses.



KINDS OF COMMUNITIES

KIND OF COMMUNITY	BUILDINGS	STREETS OR ROADS
Farming Community	On each farm a house, barn, machine sheds, granaries, outbuildings.	Trails, dirt roads, gravel roads, a nearby gravel or paved highway.
Village or Hamlet	Homes, post-office, church, school, store, garage, hotel. These buildings are often spread out.	Often a main road through the hamlet — dirt, gravelled, or paved.
Town	Usually a business centre, with stores, garages, hotels, doctors' and dentists' offices. The homes are usually built around the business centre.	Main dirt, gravel, or paved road through town. Side streets off the main road.
City	Buildings close and tall. Made of wood, brick, stone, and concrete. Shops, homes, offices, factories, warehouses, schools, water towers. Areas for business, for factories, and for homes.	Busy paved and gravelled streets. Traffic lights and street railways.

Kinds of Communities

The people of Canada live in many different kinds of communities. A Canadian's home might be on a farm, in a hamlet or village, in a town, or in a city. No matter where you live there are two things that you will always see when looking at a community—buildings and roads.

Look at the pictures of communities on page 18. Use the chart above to help decide which kind of community each picture shows.

Which kind of community do you live in? Can you name nearby examples of the other kinds?

Once More

In this chapter we have looked at our neighbourhood and our community. We have talked of ways we may look at any

community anywhere in the world. Remember, when we look at any community we must look at (1) *the land*, (2) *the climate*, (3) these "factors":

Food
Agriculture
Clothing
Transportation
Occupations
Resources
Shelter

You have also seen different kinds of communities — farm, village, town, and city.

In the next part of this chapter we will look at a map of a community. The things we look for in this community will be the same things that we will look for when we study communities in other countries.

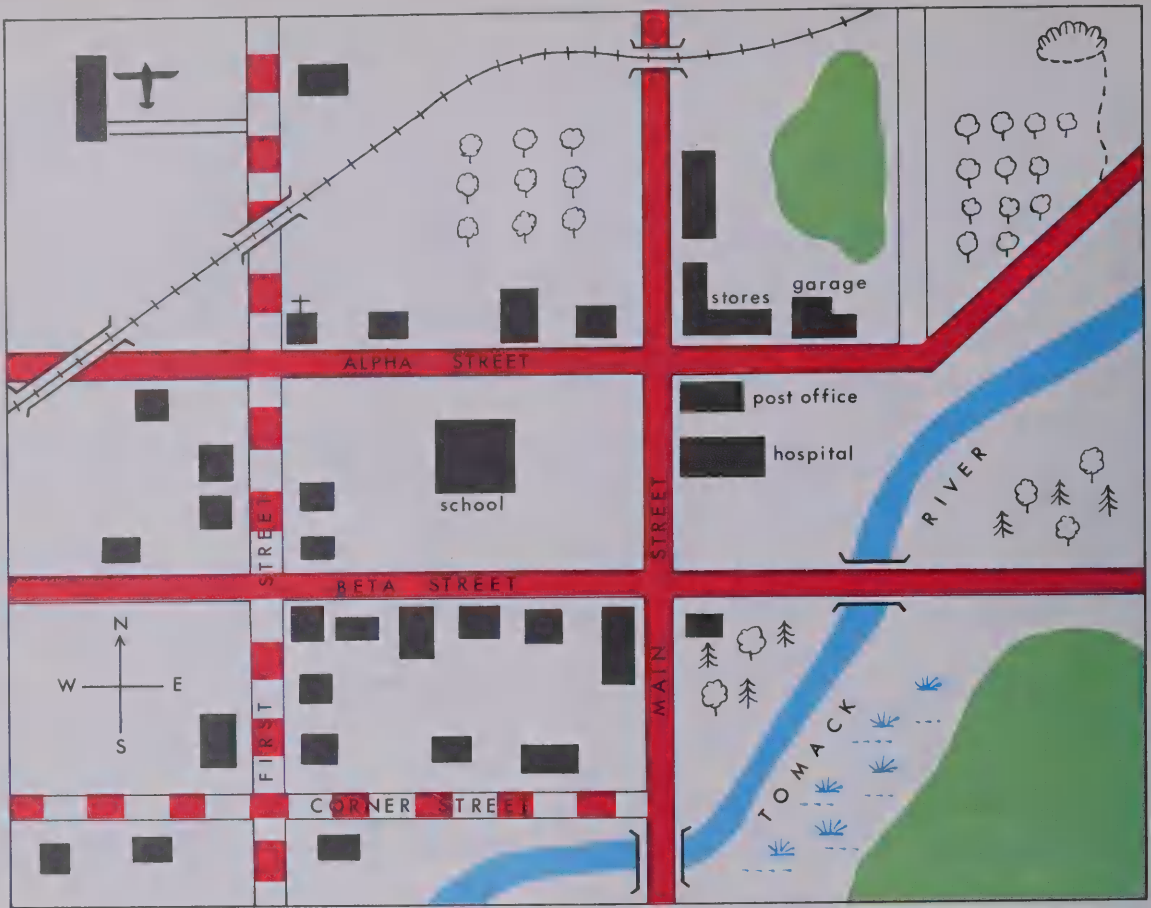


Figure 8. MAP OF PICKVILLE

THE MAP SHOP

Reading a Map

Figure 10 is a map of a village called Pickville. The following questions will help you read the map.

1. Write a sentence about each of the following facts shown on the map of Pickville:

- | | |
|----------------|-------------------|
| a. the land | c. transportation |
| b. agriculture | d. occupations |
| e. shelter | |

- Name the street the post-office is on.
- What road crosses a river?
- What streets does the railway cross?

5. If you stood on the roof of the school, in which direction would you look to see an orchard?

6. Which bank of the river would you find it easier to walk along — the north-west or the south-east?

7. Is the airport in a good location? Why?

8. If you were building a camp-ground in Pickville, where would you build it?

9. Where would you place stop signs for cars, trucks, and buses?

10. Where would be a good place to set up a fruit stand?

PICTURE STUDY GUIDE

You will often be asked to describe what you see in pictures. The following list of questions and clues will help you see things in pictures that you might otherwise miss. Remember to give your answers, whether written or spoken, in complete sentences.

1. What kind of land do you see? (Flat, hilly, mountainous, etc.)

2. What features do you see? (Rivers, lakes, bays, cliffs, etc.)

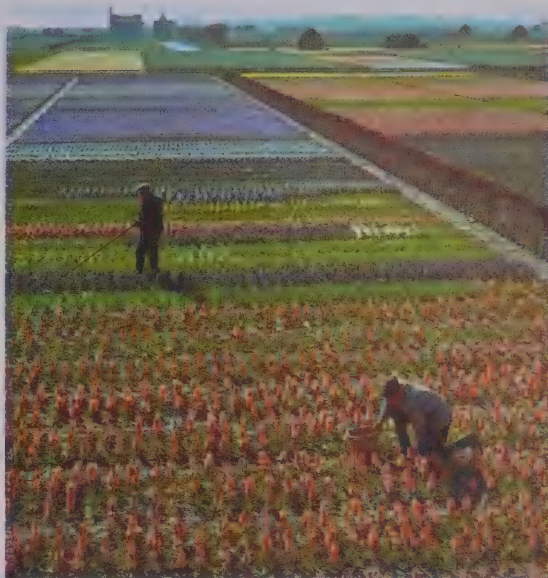
3. What use of the land is seen in the picture? (Forestry, market gardening, mixed farming, etc.)

4. What kinds of transportation do you see in the picture? (Railways, roads, ferries, ships, etc.)

5. What kinds of work might be done in this area? (Fishing, factory work, railroad work, farming, mining, etc.)

6. What kinds of recreation would this area offer? (Hunting, fishing, hiking, boating, skiing, etc.)

Here is the way one fourth grade boy described a picture showing fields of tulips in the Netherlands, using the above clues.



1. *The land in the picture is flat.*
2. *I can see a canal.*
3. *The fields are used for growing flowers.*
4. *There are no kinds of transportation shown in this picture.*
5. *Workers would be needed to (a) hoe (b) weed (c) plant (d) cut the flowers (e) drive trucks.*
6. *The picture does not show any recreation.*

SUMMARY QUESTIONS—1

1. Why is it important to know about the land and the climate of each community we study?

2. What are the chief industries or occupations of your community?

3. What is the best way to study geography?

4. Why are maps drawn? What uses can be made of maps?

5. Why are daily weather records kept?





CANADA

- Cities over 1,000,000 -----
- Cities of 300,000-1,000,000 -----
- Cities of 100,000-300,000 -----
- Selected cities under 100,000 -----

National Capitals

Other Capitals

RAILROADS

SEA LEVEL

10,000 FT.

5,000 FT.

1,000 FT.

BELOW SEA LEVEL

MAP SCALE: ABOUT 300 MILES TO ONE INCH

0 100 200 300 400 500 600

BEFORE WE START CHAPTER 2

Reading Bars

Here is a picture of Tom and his father. (Figure 1).

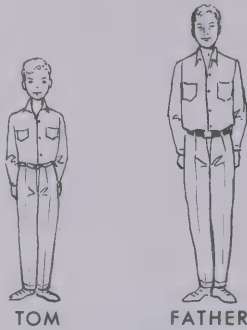
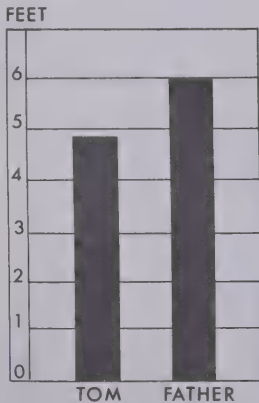


Figure 1.

- A. Who is the taller?
- B. Who is the shorter?
- C. Is Father twice as tall as Tom?

We could show how tall Tom and his father are by using bars (Figure 2). The bars help us *compare* how tall they are.

Figure 2.



Are your answers the same as before?

The numbers in Figure 2 along the side of the drawing tell us even more about Father and Tom.

- D. About how tall is Father?
- E. About how tall is Tom?

Now answer these questions.

- A. Who is the taller?
- B. Who is the shorter?
- C. Is Father twice as tall as Tom?

We may use bars to show the size of many things in geography — how much rain falls, what the temperature is, how much coal a country has, how much oil a country has, how much land is used for farming, and many other things.

When we place two or more of these bars together we have a *bar graph*.

Look at this bar graph (Figure 3) and answer the questions below.

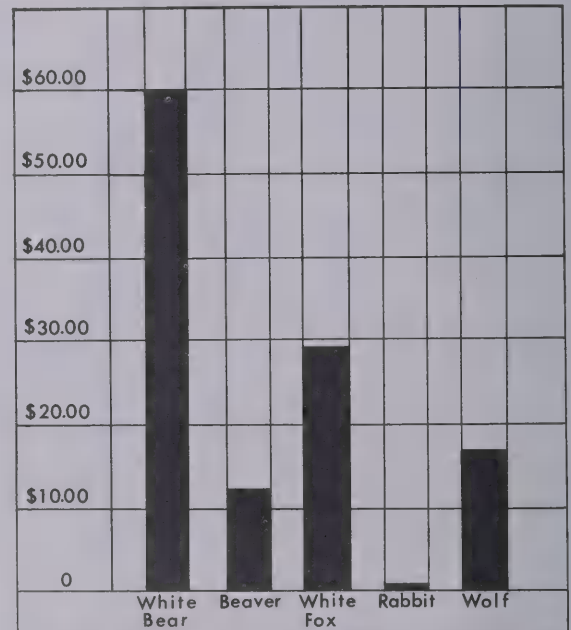
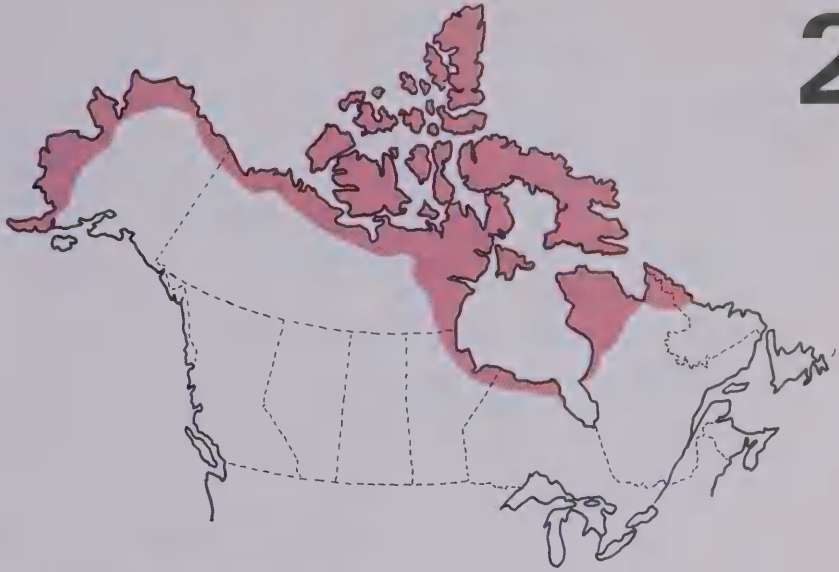


Figure 3. Value of animal pelts one year

-
- DO**
1. Which animal's pelt is worth the most money?
 2. Which is worth the least money?
 3. About how much money would a hunter receive for a white bear pelt? a white fox pelt?
 4. Why are wolves' pelts worth so little money?
-



Living on the Tundra

ARCTIC COMMUNITIES

The first community we shall visit is located in Canada's northland. Martha and Jonasee are Canadian Eskimos who live in the Northwest Territories. Using the map of Canada (pp. 22-23), find where you live. Now find the Northwest Territories. Trace your finger along the Arctic Circle. This is a line which runs through the Arctic, the part of the world where temperatures in the warmest month of the year are usually less than fifty degrees. Temperatures are low there be-

cause the sun is never high in the sky. What places do you find near the Arctic Circle? At any place on the Arctic Circle there is one day in the year (June 21) when the sun never sets, and one day (December 22) when it never rises. As you travel north from the Arctic Circle towards the North Pole there is an increase in the number of days each summer when the sun is always shining, and in the number of days each winter when the sun does not rise at all. At the North Pole

you would find continuous sunlight for half the year and continuous darkness for half the year.

The North Pole is one end of the earth's axis. The *axis* is the line through the centre of the earth round which the earth spins. The ends of the axis are called the North Pole and the South Pole.

The turning of the earth on its axis gives us day and night. The earth turns once every twenty-four hours. While the side away from the sun has night, the side facing the sun has day. Project 1 will help you see how day and night are caused.

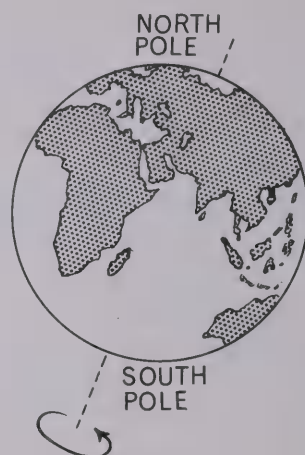
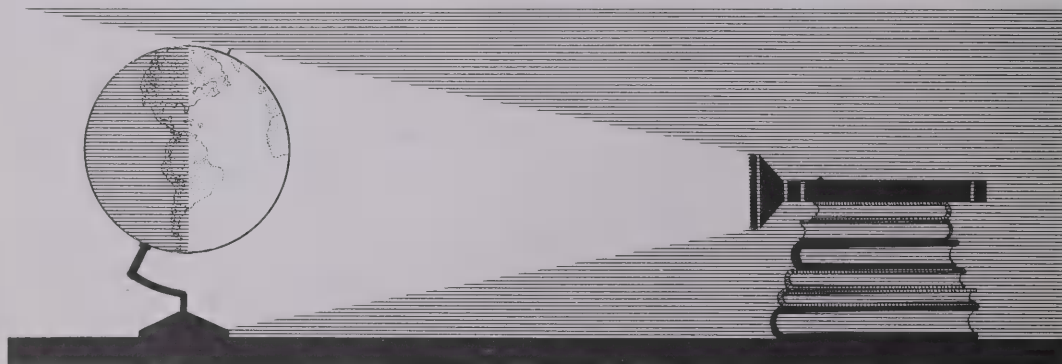


Figure 4. The earth turns on its axis.



PROJECT 1

1. Place a small lump of plasticine on the Great Lakes on a globe.
 2. Set the globe on one end of a table.
 3. Set a flashlight or film projector on the other end of the table.
 4. Darken the classroom.
 5. Shine the light on the globe.
 6. Turn the globe slowly.
 7. Notice how the lump of plasticine goes from the light to the shadow and back to the light again.
-

Figure 5.

The turning of the earth on its axis gives us day and night.

The earth turns once on its axis every twenty-four hours, but it also moves around the sun once every year. It moves around the sun in a very special way. The slant of the axis is always the same.

This causes northern lands to face toward the sun at one time of the year and away from the sun at other times. Look

at this chart of day and night in the town of Coppermine, Northwest Territories. What connection is there between the hours of daylight at Coppermine and the tilt of the earth's axis at each date on the chart?

DAY AND NIGHT IN COPPERMINE

MARCH 21	JUNE 21	SEPTEMBER 22	DECEMBER 22
12 hours of daylight	24 hours of daylight	12 hours of daylight	24 hours of darkness

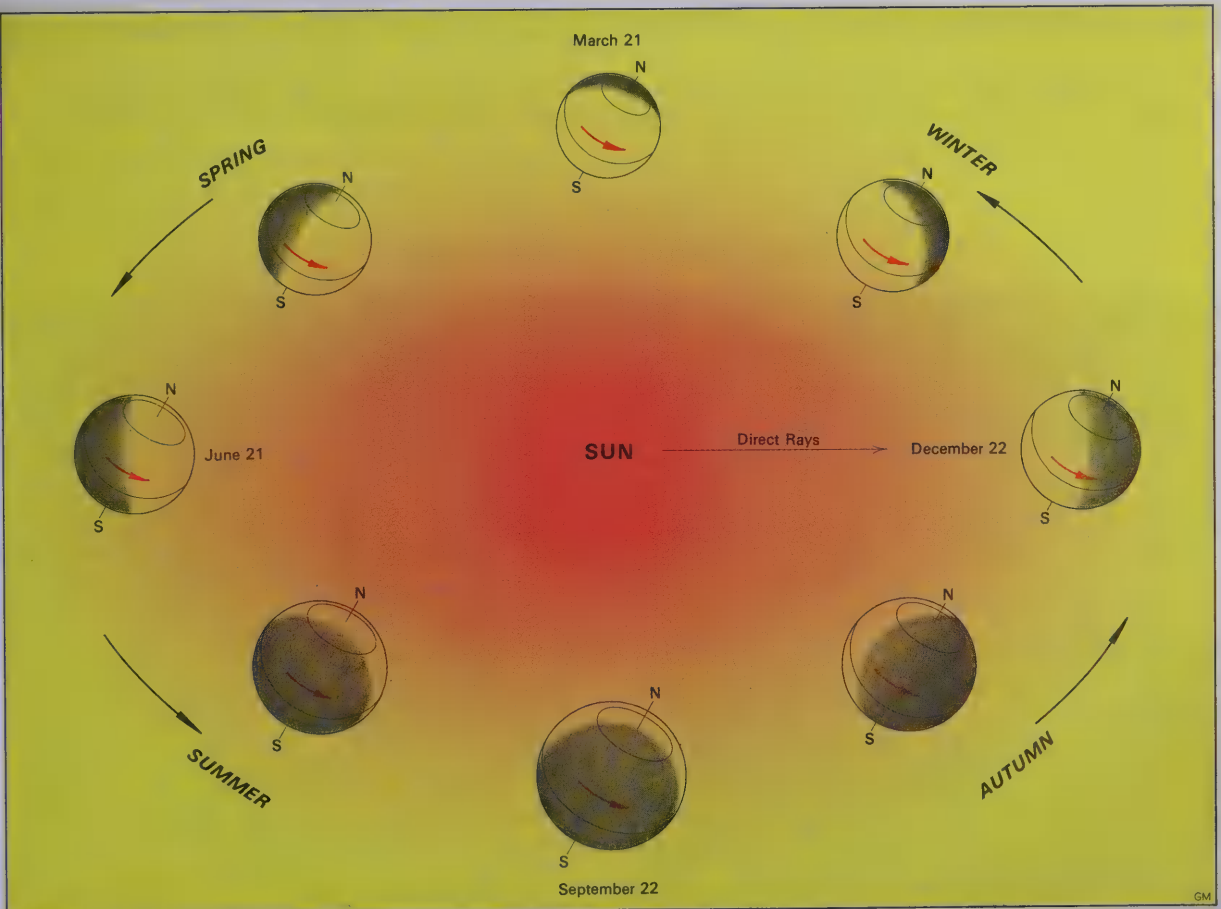
DO

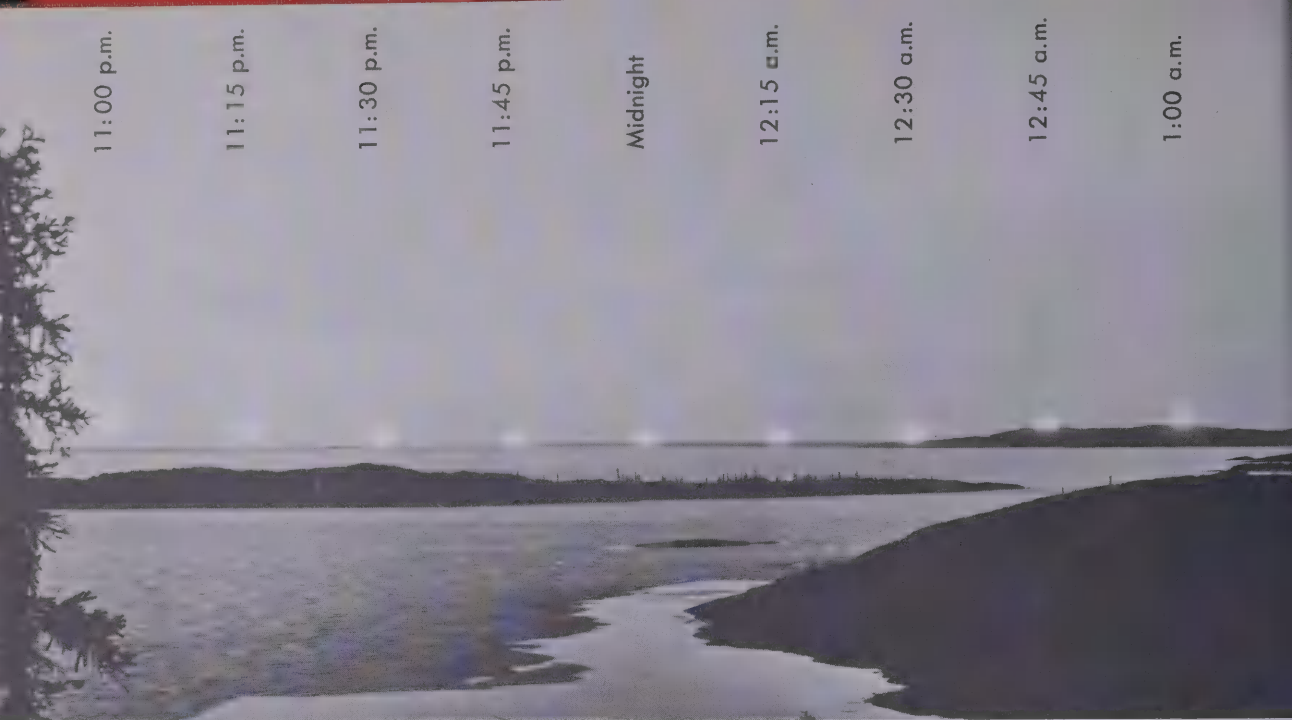
Copy the chart below into your notebook and fill in the needed information.

WHERE WE LIVE

LOCATION	US	MARTHA AND JONASSEE
Continent	?	?
Country	Canada	?
Province or District	?	?
In or near what town or city	?	Near Frobisher Bay

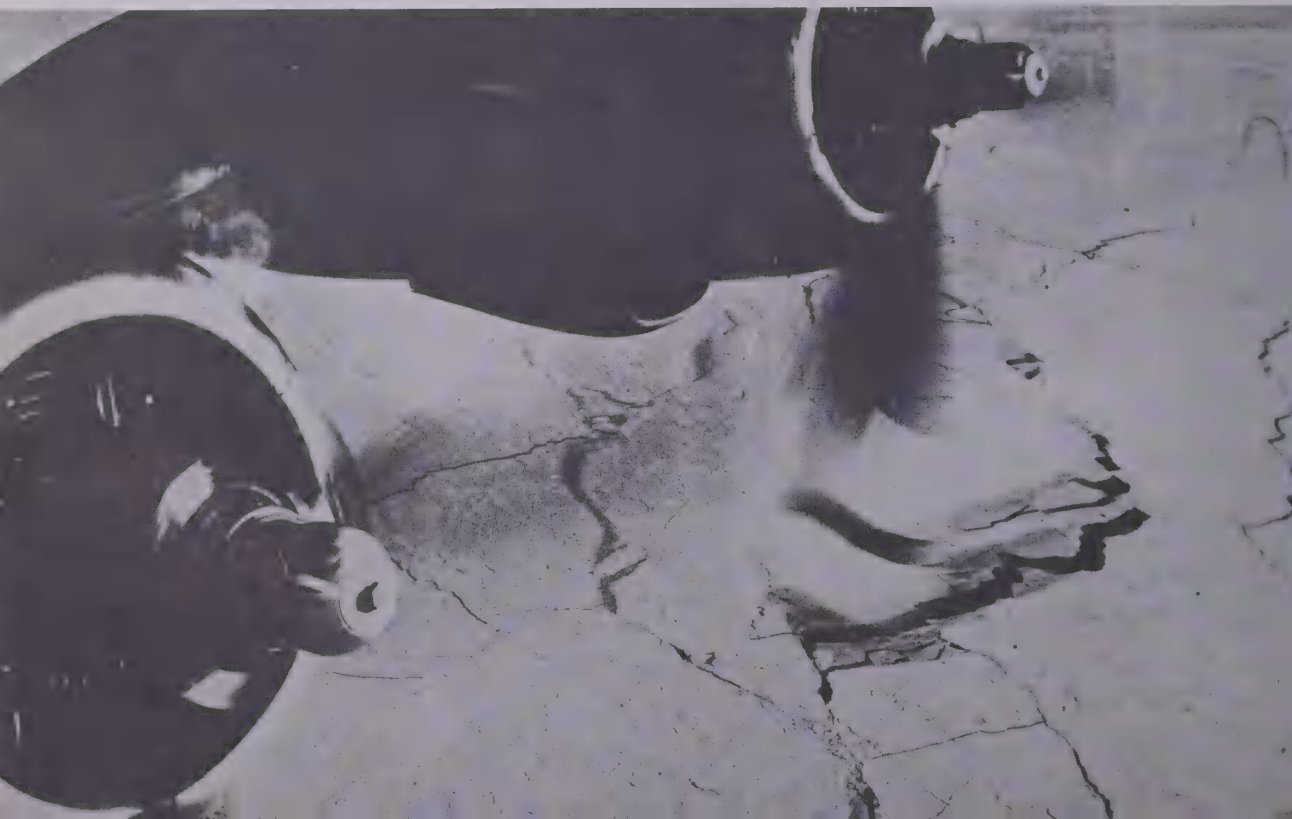
Figure 6. The earth moves around the sun once every year.





The midnight sun. Positions of the summer sun before, at, and after midnight at Great Slave Lake, N.W.T. A camera was set up and every fifteen minutes a picture of the sun was taken.

An airplane view of the North Pole



Arctic Land

The part of the Northwest Territories where Martha and Jonassee live is in the Arctic region. We usually think of the Arctic region as the area that is found north of the timber line. The timber line is the limit on mountains or in cold lands beyond which trees will not grow. In order to grow, trees require at least one month in the year when temperatures average 50 degrees or over. In the Arctic region the average temperature is always below this figure. The Arctic region includes *ice-cap* and *tundra* areas. Ice-cap areas are places where the ice never disappears. Tundras are plains or hill land where only small plants will grow. In summer poppies, blue-bells, short grass, low shrubs, and green mosses may be seen growing on the tundra.



Summer plants on the tundra





A view of Frobisher Bay, Baffin Island, N.W.T.

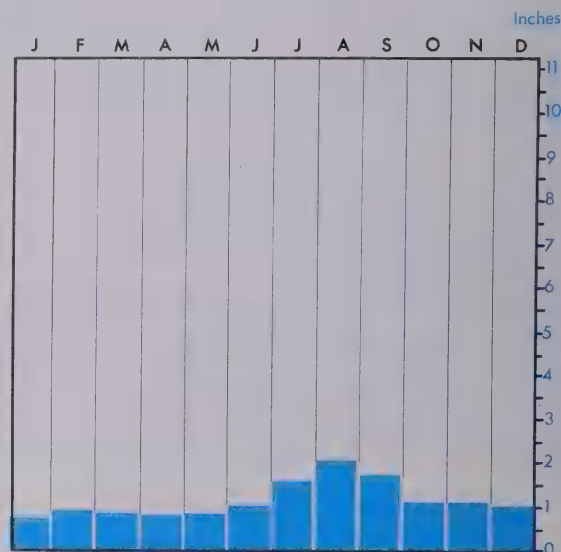
Climate

Figure 7 is a chart of the average rain and snowfall for Frobisher Bay, a town in the Arctic. Below it is a chart showing the average temperatures for Frobisher Bay. We will use these to find out about the climate in the Arctic.

DO

1. During which 3 months does it rain or snow the most in Frobisher Bay?
2. Which 3 months are the warmest in Frobisher Bay?
3. How much rain and snow falls in a year in Frobisher Bay?
4. Is this more or less than your community has?
5. Write a weather forecast for a day in January in Frobisher Bay.

Figure 7. Monthly rain and snowfall at Frobisher Bay. The letters across the top of the chart stand for months of the year. The numbers down the side stand for inches of rainfall.



BAR GRAPHS OF CLIMATE

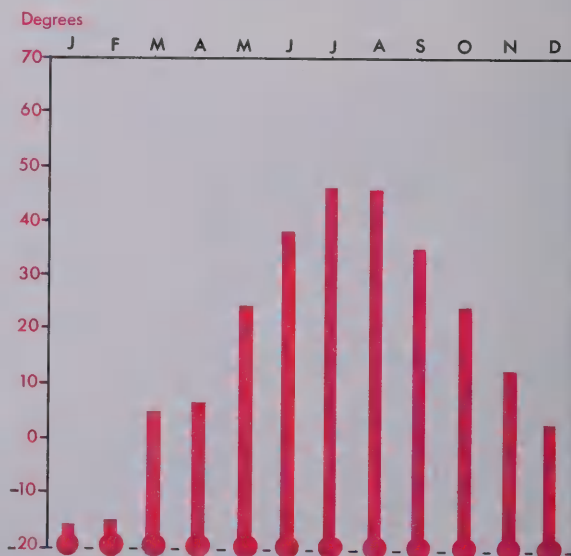


Figure 8. Monthly temperatures at Frobisher Bay. The letters across the top stand for months, the numbers down the side for degrees.

Martha and Jonassee at Home

FACTORS ▼

Jonassee and Martha are sitting with their mother in their house. To most Canadian children it would seem like a strange house, for it is built of snow. Their home in the settlement is a small wooden house. But while they are with Father on a trapping trip, the family camp in a temporary snow house. Since it is made of snow, it is never kept very warm inside; warmth would melt it.

They sit by the little fire made from seal oil which burns in a stove called a *kudlik*. Over the fire hangs a big iron pot. A stew of seal meat is keeping warm in the pot. Sometimes the children reach in for a piece of meat. The Eskimos usually eat whenever they are hungry, rather than wait for any special time by the clock.

The house is round, with a little snow porch through which a person crawls to go in or out. The snow house is shaped like a huge half orange. A tall man can just stand comfortably in the middle. From wall to wall it is not much wider than most living rooms. Sometimes several may be joined together with snow halls between them. The snow house in which Martha and Jonassee are living is not very big, for the family does not expect to be in this place for very long.

Jonassee helped his father build the house. First they found some hard deep snow. This is not always easy, for it is so dry in the Arctic that there is less snowfall than almost anywhere else in Canada. Strong winter winds blow what snow there is into drifts in hollows of the ground.



Why are you unable to see the snow blocks this snow house was built of?

There it becomes firm, and may be cut into blocks with a knife.

The inside of a snow house. Can you see the kudlik?





Building a snow house. Why must the snow blocks be slanted on the edges?

The snow blocks are not straight like bricks or blocks of cement. Each block is given a slant on the edge so that the rows of blocks, as they are set in place, go around and around and up. The rows get shorter and shorter and end in a single block at the top. A small hole is made in the top for a chimney or ventilator. A snow block is taken out and replaced with a thin sheet of ice made from fresh water. This makes a window. Martha and Jonassee packed the cracks between the blocks with snow. Then the family moved in.

They did not have many things to put in the house. A snow bench across one

wall served as bed, chairs, and table. To keep warm they used animal skins.

The children's mother was sitting on the snow bench now, busily sewing. She had so much to do before tomorrow!

The children were most excited of all, waiting for tomorrow. They hoped their father would soon return from his fox traps. Though it was only three o'clock it was very dark. They knew this even though they were inside the house. When the sun was bright the light shone through the snow blocks and through the window in the roof. But now, in the middle of winter, the sun did not shine here above the Arctic Circle. At noon there was a little twilight, less bright than full moonlight.

DO

1. In your notebook copy this chart. Fill in the information about Martha and Jonassee's temporary home.

MARTHA AND JONASSEE'S HOME

PARTS	MATERIAL	WHY
Roof and walls	?	?
Basement	?	?
Windows	?	?
Heating	?	?
Shape	?	?

2. Draw a picture of Martha and Jonassee's home.

3. What kind of meat was in the stew that the family ate?

4. What kind of meat does your mother usually use to make stew?

Martha and Jonassee's father hunts and traps, much as Eskimos have always done. Eskimos who live by hunting and trapping must move often. In winter Father puts out lines of animal traps for many miles. He catches white foxes and sells them to the trader. He hunts seals by the edge of the ocean, or on the sea ice where seals make holes to breathe air. Hunters travel across the ocean ice and over the snow by sleigh, pulled by their dog teams. In summer when there is no ice they move along the coast of the ocean by boat, and pitch tents on the shore. They hunt walrus or whale on the ocean. Inland they catch birds, and fish in small streams.

Suddenly there was a sound of dogs outside the snow house. "Ataatak (Father)!" Martha shouted. Before he came inside Father unhitched the dogs and gave them seal meat for their dinner. From his sleigh he unloaded six foxes with beautiful white fur.

"Look at these," he said. "Now we can buy your mother that new cloth she has been wanting — and many other things."

Mother has been making a new sealskin coat for Jonassee. The parts are cut out with a sharp knife. She does not have a pattern, but she knows exactly how to cut the skin in pieces of the right size and shape without wasting any of the skin. Mother is the family tailor. She makes most of the clothing for the family, even the boots. She sews beautifully with needle and thread.



A white fox pelt

This is only part of mother's work. She cooks for the family, prepares seal oil for the kudliks, helps cut and store food that has been caught, and looks after the children.

Jonassee and Martha are lucky, for their father is a good hunter, yet often there is not enough food, and they go to bed hungry. When other families live in the same camp, they always share the meat which they have. If they go too long without being able to find any animals, they have to ask Mr. Hampton, the government agent, for food. Otherwise they would starve.

1. Explain why Martha and Jonassee and their parents do not live in the same place all year.

2. Copy the following outline in your notebook and fill in the names of animals under each heading.

ATAATA'S OCCUPATION

	HUNTING	TRAPPING
1.	?	?
2.	?	?
3.	?	?
4.	?	?

3. Make a list of the jobs that Mother must do.

A Trip to the Settlement

FACTORS

On this day Jonassee and Martha were thinking about very exciting things indeed! After the trip home they would go by airplane on a long journey to Frobisher Bay.

"I think you will be frightened to travel so far away," their father said. "You will want to come home."

"Yes," their mother said, "when they

are far away in Frobisher Bay they will want their home."

"Of course we will," said Martha, climbing up on the sleeping-bench. "But we will be with our uncle and aunt, and with cousin Kananga. They will look after us."

When they awoke much had to be done. While Mother and the children packed up all the things in the snow house, Father made ready his white fox pelts which he would take to the store when they reached the settlement.

It was not long until they had loaded the sleigh, which is called a *komatik*, and hitched the dogs. The komatik is a long, low sleigh with steel runners nailed to the wood. Father had put water on the runners. The cold air quickly froze a thick coating of ice which protected runners and helped speed the sleigh over the ground. The children and mother took turns riding on the komatik, while Father ran behind it. It would be a long day's trip by dog team to the little settlement with its store, school, church and a few houses.

What loads would Eskimos be able to carry on these komatiks?



Two or three times they stopped to make a cup of tea and eat some bannock. Bannock is a hard thick pancake made of flour, water, and chopped-up meat or fish. They hoped to reach the settlement that night so they would not have to build a house on the trail. It was late afternoon when they saw the light of the settlement.

DO

1. Start a large chart. Write the title *Transportation in the Arctic* at the top. Draw pictures on the chart of the kinds of Arctic transportation you have read about.

2. Make a list of the preparations the family had to make before leaving the snow house.

3. List ten items likely to be carried on the komatik.

The Settlement

FACTORS

The family was tired, but there was no thought of going to bed then. There were friends to visit. Martha and Jonassee wanted to see Miss Stanley, the school teacher, to tell her about their journey. They went to school only when they were at the settlement. They wished they could go to school every day. In Frobisher Bay they would be able to.

Even though they were excited, they slept late the next morning. It was almost noon when they went to the trading post. They saw people watching the sky and calling "*Siqiniq* (The Sun)! *Siqinik*!" They asked Miss Stanley why.

"Don't you remember?" Miss Stanley smiled. "This is the day when the sun comes back."

No one had seen the sun since the end of November. Today, for the first time, it would come over the horizon again. The sky in the south was pink before it came, and when it started to show over the rim of the low hills everyone shouted, "The sun, the sun!" It stayed only a few minutes before it sank out of sight again. Each day it would stay a bit longer until it was staying all day and all night. In June and July it was never dark, just as in winter it was never really light. But now June was a long way off, and the children were thinking about what was to happen before then.

PROJECT 2

In chapter one we called your community "the place where most of your family's activities take place, and where most of its needs are supplied." Let us put on a map what we know about the community Martha and Jonassee live in.

1. Lay a large sheet of paper on your desk or on the floor.

2. Draw a small circle in the middle for the snow house in which we first saw Martha and Donassee.

3. Print the names of the four directions on the map.

4. Using the symbols from Figure 1 on page 4, place the following on your map:

- a. the store at the settlement
- b. Martha and Jonassee's wood house
- c. the airport
- d. the trail from the snow house to the settlement.
- e. six other settlement buildings



Inside the store at the settlement

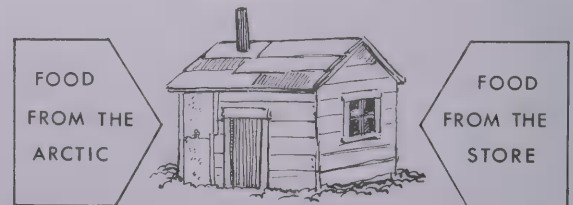
At the trading post Mother and Father sold the furs and bought the things they needed — some tea, tinned milk, flour, jam, soap, tobacco, and the cloth mother had been wanting. The children were each given a little present of candy.

Martha and Jonassee kept looking and listening for the airplane that was to take them to Frobisher Bay. At last Jonassee shouted, "It's the plane, it's the plane!" They could see a little light in the sky. Nearer and nearer it came. Soon it roared down the ice on its skis. As soon as it stopped, two men climbed out. One was Doctor Bennett, who came to the settlement to look after the sick. The other was Mr. Hampton, the government agent. It was his job to help the Eskimos. He got them store food when there were no animals to be found. He helped them buy

boats and rifles and showed them new ways to hunt and fish. Talking in Eskimoan, he told the children, "The plane will stay a few hours so that we can see all the people in the settlement."

DO

Make two arrow charts. On one draw pictures of foods that come from the Arctic to the Eskimo home. On the other draw pictures of foods that come from the store to the home.





Why are light ski planes useful in Arctic regions?

The Airplane Trip

FACTORS ▼▼▼

Jonassee and Martha were very much excited when at last the moment came for them to climb into the airplane. They were also afraid of leaving their mother and father for the first time. Although the Eskimos have seen many planes, it is always exciting to have one visit them. Soon they were off, and the children looked down at the people waving. Then they could see the settlement with its store, school, and few buildings.

The plane flew along the coast. It was hard to tell the land from the ocean when everything was frozen white. They could see big hills gleaming in the light of the rising moon. Once they saw a little light as they passed over a small settlement much like the one they had left.

Although it was noisy in the airplane,

Mr. Hampton talked to them about the big country over which they were flying. There were many little camps like the one where Martha and Jonassee had stayed.

Many Eskimos today no longer live as hunters. They have learned to work at new jobs and live in comfortable houses in villages where there are schools, churches, and doctors or nurses. Frobisher Bay is one of the biggest of these places.

DO

1. Find Baffin Island on the map of Canada.
 2. Draw a map of what the children might have seen as they flew along the coast.
 3. On your Arctic Transportation chart add pictures of methods of transportation mentioned in this section.
-



Frobisher Bay airport. What things that can be seen would be new to Martha and Jonassee?

Frobisher Bay

FACTORS
▼▼▼

Martha saw Frobisher Bay first. "See the lights," she said, "all green and blue and red." Mr. Hampton said that the coloured lights helped the pilots to find their way to land. Soon they were sliding along the ground, and a few minutes later they got out of the plane.

The children could hardly believe what they saw. There were large buildings such as they never imagined. There were many airplanes, bigger than any they had ever

seen. They were so busy looking at the many new things that they did not see their cousin who had come to meet them.

Suddenly cousin Kananga was beside them, and they all began to talk at once. "Wait a minute," said Kananga. "I am going to take you back to my house and we can do our talking there." Then he led them to a truck. Jonassee and Martha had never seen a truck or a car before. It was a great thrill to get in and set off down the road.

Kananga was a young man, and had a good job driving a big tractor. He had watched the big machinery used in making the buildings and roads needed for a weather station. One day Mr. Hampton had asked him if he would like to go to a special school where he would learn to run big machinery. He was delighted to have the chance, and had gone to Yellowknife, a town on the north shore of Great Slave Lake. There, with other Eskimos and Indians, he studied for four months. He spent much time running machines and looking after them. When he had finished, he was given a good job in Frobisher Bay. He had asked his mother and father to come and live with him there. Soon his father too found work, and they were very happy in their new home.

Leaving the airport, Kananga drove Martha and Jonassee through the town. From the truck the children stared at the houses and big buildings. Soon they stopped beside a brightly painted little

house with electric lights shining through the window. Kananga's mother and father were at the door to welcome the children.

DO

1. Copy this chart into your notebook and use the chart on page 19 to help you fill in the information.

ARCTIC COMMUNITIES		
COMMUNITY	KINDS OF BUILDINGS	STREETS AND ROADS
The Camp	?	?
The Settlement	?	?
Frobisher Bay	?	?

2. Add the transportation methods talked about in this section to your Arctic Transportation chart.

3. Locate Yellowknife and Great Slave Lake on your map of Canada (pp. 22-23).

4. Write a letter that Kananga might have written to his parents when he was in Yellowknife going to school.

Winter traffic in Frobisher Bay, N.W.T. How is it different from winter traffic in your community?





Inside an Eskimo home at Inuvik, N.W.T. How is the inside of this home different from the inside of a snow house?

Kananaga's House

FACTORS

"Is this where you live?" Martha asked. There were two little bedrooms, a big living room, and a kitchen with a big warm stove. Gay curtains hung at the windows, and there were beds, a couch, tables, and chairs. As well as a radio they also had a record player.

"Why don't you look around?" asked Kananaga's mother. They did.

Martha really liked the house. It was

very clean and tidy. There were all kinds of tins and boxes of food, more than in homes in southern Canada, all put neatly on shelves. In the Arctic it is generally too cold to grow fresh fruits and vegetables, and fresh food is only available when brought in by airplanes or by the big supply ships in summer.

Kananaga's family no longer lived on wild animals for they did not have time to go hunting except on weekends or holidays. It had taken them some time to become used to the food from the store, just as it would take you time to become used to eating seal meat.

"There are many houses like ours in the Arctic," said Kananaga's mother. "These houses are made in southern Canada. Then they are shipped here in pieces for us to put together."

"Yes," said Kananaga. "When we built ours it was one of 300 that were shipped to the Arctic that year."

Martha noticed that the clothes hanging in the closet were different from her own. There were parkas made of cloth, and everything was in the style of the white man.

DO

1. Write a story telling what you would say as you took Martha and Jonassee through your home, room by room.
2. Why do houses have to be shipped into the Arctic?
3. Why are the pieces for the houses made in southern Canada?

Going to School

It was very late that night when the children went to bed. The next morning brought all the excitement of going to a new school. Jonassee and Martha found it strange at first, and they were very shy when they met Mr. Gardiner, their teacher. They seemed suddenly to forget the few words of English they had learned. The other children welcomed Jonassee and Martha. Some of the white children spoke to them in Eskimoan.

The children enjoyed school. They began to learn reading and writing. They liked to hear Mr. Gardiner talk about

other parts of the Arctic where he had been. He knew more about Eskimos than they did.

New Ways in the Arctic

FACTORS

Receiving less and less money for hunting and trapping was forcing the Eskimos to change their way of life, Mr. Gardiner told the children. At first the Eskimos asked the government for more and more help. Now the government is helping the Eskimos to help themselves. Men trained in special jobs are brought to the Arctic to help the Eskimos start their own business projects. Here is a list of some of the

Setting fish nets across the mouth of a stream near Port Burwell on Ungava Bay





Arctic char are cleaned by Eskimo women at a co-operative.

projects they have started. (The word *fishery* means a place where fish are prepared for sale.)

Port Burwell

1. Arctic char fishery
2. Arts and crafts
3. Store
4. Cod fishery
5. Seal fishery

Mackenzie River Delta

1. Dog-food plant
2. Seal fishery
3. Whitefish fishery
4. Whale fishery
5. Fur clothing shop

Cambridge Bay

1. Arctic char fishery
2. Lake trout fishery

Fort Chimo

1. Arctic char fishery
2. Salmon fishery
3. Arts and crafts
4. Sawmill

Here is a sample of how one of these new projects works.

At the new Leaf Bay fishery near Fort Chimo, Arctic char are taken from the nets twice a day and flown to the plant at Fort Chimo. Eskimo women sort, wash, and

wrap the fish. Then the char are packed in 60-pound boxes and flown to Montreal. This famous Arctic char may be bought in stores and restaurants a few days after it has been taken from the water thousands of miles away.

Perhaps the discovery of minerals in the Arctic will change the Eskimo's life in the future. The cost of transportation over great distances makes mining more costly than in other parts of Canada. But construction is possible, and so is transportation by aircraft, trucks, and tractor train. Mines have been run for many years at Yellowknife and Port Radium.

The building of radar stations to keep track of air traffic over our northland has

shown that work can be done by men and machines at all seasons of the year, though of course work outside in winter is very difficult.

DO

1. Find these places on the map of Canada: Port Burwell, Cambridge Bay, Fort Chimo, Port Radium, the Mackenzie delta. (See map on page 47.)

2. Add transportation methods talked about in this section to your Arctic Transportation chart.

3. Make a list in your notebook of all the jobs Eskimos could do, based on the projects mentioned in this section.

A communication station helps keep track of air traffic across the Arctic.



Spring Again

FACTORS

Soon signs of spring began to appear. Little streams of water began to run down the hillsides. On southern slopes the hard icy snow was melting.

But it was not until July that the ice in the bay broke up. Huge blocks were carried to the open ocean by the tide. Then the flat white bay suddenly changed to rich blue.

Soon after the ice was out of the bay, the first ship arrived. Many other ships would come to the bay, bringing food and supplies, and oil to heat the houses of the town. The ships drop their anchors far out, for near the shore the water is too shallow for them to sail. Smaller boats and barges go back and forth between the big ships and the dock to bring in the cargo. The ships carrying oil have long pipes hooked to them so that they can pump the oil into huge tanks on the land.

There was always much to watch with everyone out of doors again. School was over for another year, and so was the children's visit to Frobisher Bay. They would return to their home on a ship called the *C. D. Howe*. They were looking forward to travelling on the ship and to seeing their father and mother again.

DO

Copy this chart into your notebook. Give one reason for each thing that happens.

WHAT HAPPENS	WHY?
Ice blocks are carried out to sea.	?
Ships anchor far out in the bay.	?
Snow on the southern slopes melts first.	?
Small barges are needed to bring in the cargo.	?
Ships arrive only in the summer.	?



Everyone comes to see the ship unloading. What types of goods might be coming to the settlement, and what goods leaving it?

A Journey by Boat

FACTORS

The *C. D. Howe* did not stop at Frobisher Bay on the way north, so Martha and Jonassee travelled first on a smaller boat called a *Peterhead*. The Eskimos use Peterheads on whale or walrus hunts, or to travel long distances by sea. The Peterhead is about thirty feet long and has a small cabin for the crew and passengers in case the weather is rough. Not many Eskimos own Peterheads, as they are very expensive. Some Eskimos have whale boats which look like heavy rowboats with a motor. Some own a *kayak*, a beautiful light boat made with sealskin stretched over a wooden frame. The kayak is something like a canoe. The top is covered with skin except for a hole called a cockpit where one man can sit. The kayak is moved through the water with a paddle. Now not so many Eskimos can handle a kayak as in the old days.

As the children set off in the Peterhead from Frobisher Bay all their friends were at the dock to say goodbye. Jonassee and Martha were taking home a lot more than they had brought. Things they would never find in the little store near home were in their bags. They had presents from the big store for their mother and father. Uncle was sending four new sleeping bags with them for the family, and a small oil stove.

It was a long trip down the bay. On the afternoon of the second day they reached the ocean, where they waited for the ship. They did not have long to wait.

There were many people on the ship. It

1. An Eskimo Peterhead



2. An Eskimo kayak



was visiting every little village in the eastern Arctic. On the ship were food, clothes, lumber, and mail, everything that was needed for the year. There were barrels of oil to keep the wooden buildings warm. Communities in the Arctic have rows and rows of steel barrels to hold the oil that is used to heat the buildings. Many places now have big tanks to hold the oil. It is delivered from the big tanks to homes by truck. Most houses have an oil barrel from which stoves are filled.

On the ship were teachers, nurses, and policemen on their way to northern posts. There were doctors and nurses who travelled around on the ship all summer. At every place where the ship stopped Eskimos would come on board so that the doctor could examine them for illnesses.

In the winter doctors often have to be called by radio. The doctor tells the caller what to do, or if necessary an airplane is sent to pick up the patient and take him to a hospital.



Two supply ships
— the *C. D. Howe*
and, behind it, the
D'Iberville

The Eskimos think it is great fun to have the ship visit them. They come on board and talk and drink tea with their friends who are leaving or returning to the Arctic.

DO

1. The ship carried cargo and helpers for the Eskimos. List these in your notebook under these headings:

SHIP'S CARGO	HELPERS ON SHIP

2. Pretend you are a reporter visiting an Arctic settlement. One of the Eskimos becomes ill. Write the story you might send to your newspaper telling about the incident.

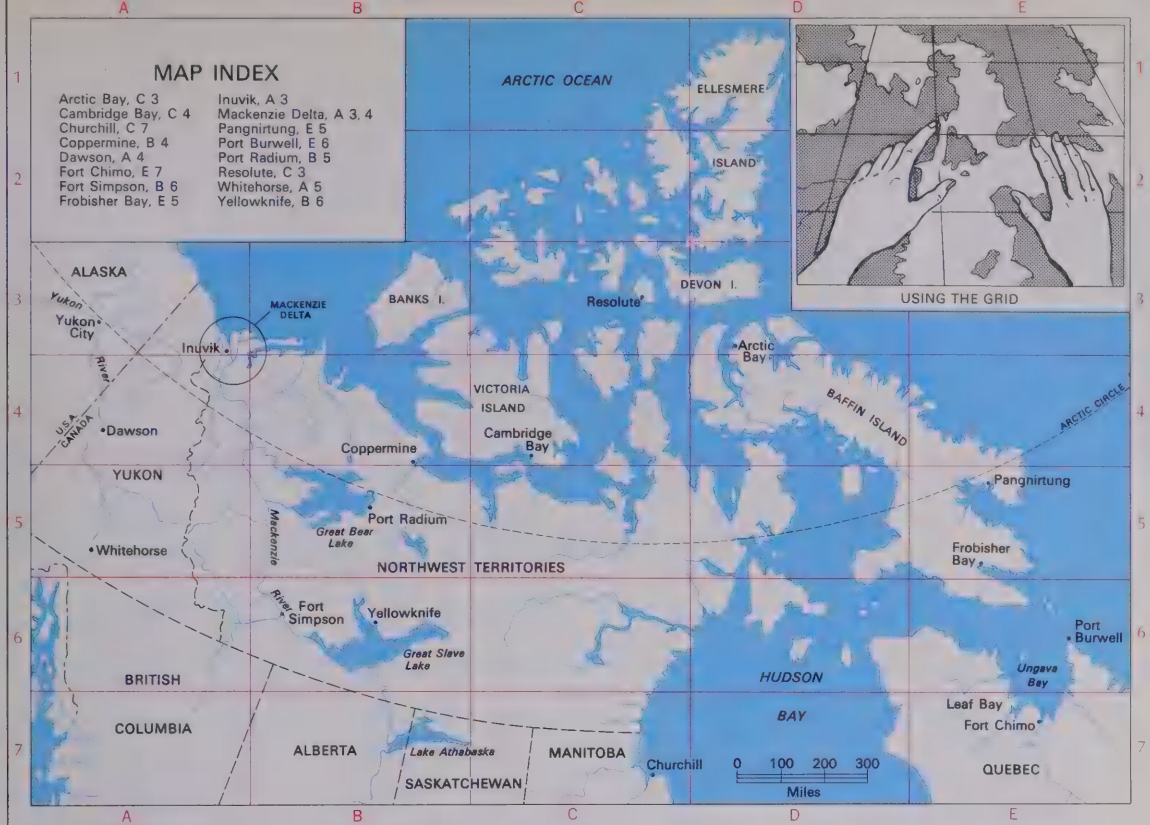
Home Again

The most exciting stop of all for Jonassee and Martha was home. Long before the boat came in, their father and some of the other men came out in a Peterhead to meet them. Martha and Jonassee could hardly stop talking about all that had happened to them during their visit to Frobisher Bay. When they got to the shore where their mother was waiting, they had scarcely begun to tell all that had happened.

"Some day," said Martha, "I am going to live in a house like Kananga's." But they all agreed that the best home is where we all live together as a family, and it does not matter if it is a house, or a tent, or a snow house. It is our home.

SUMMARY QUESTIONS—2

1. Why are there no trees on the tundra?
2. What are the chief occupations of the Eskimos in the Arctic?
3. Why is mining difficult in the Arctic?
4. Name three things about living in the Arctic that might be hard for you to get used to.



Map of Canada's Arctic lands

THE MAP SHOP

Map makers have a way to help us find places on maps. They call the helper a *map grid*. Look at the map on this page. Notice the letters A, B, C, D, and E across the top of the map. On each side of the letters there is a red line. These are the sides of the columns. Can you find the side of column B? Do you find the letter B at the bottom of this column?

Find the numbers 1, 2, 3, 4, 5, 6, and 7 on the sides of the map. Can you find the sides of each of these columns?

Now let us find Resolute, a settlement in the Arctic, using the map grid. Look for Resolute in the index to the map. Here we find "Resolute, N.W.T., C 3." "N.W.T." stands for Northwest Territories. "C 3" is the grid number. Put one

finger of your right hand at the top of the C column. Put one finger of your left hand at the left of the 3 column. Now move the C finger down the page and the 3 finger across the page until they meet. Can you find Resolute in this space?

DO

1. In your notebook write the names of the settlements found in these spaces.

- a. C 5 b. A 4 c. D 5
d. E 4 e. B 4

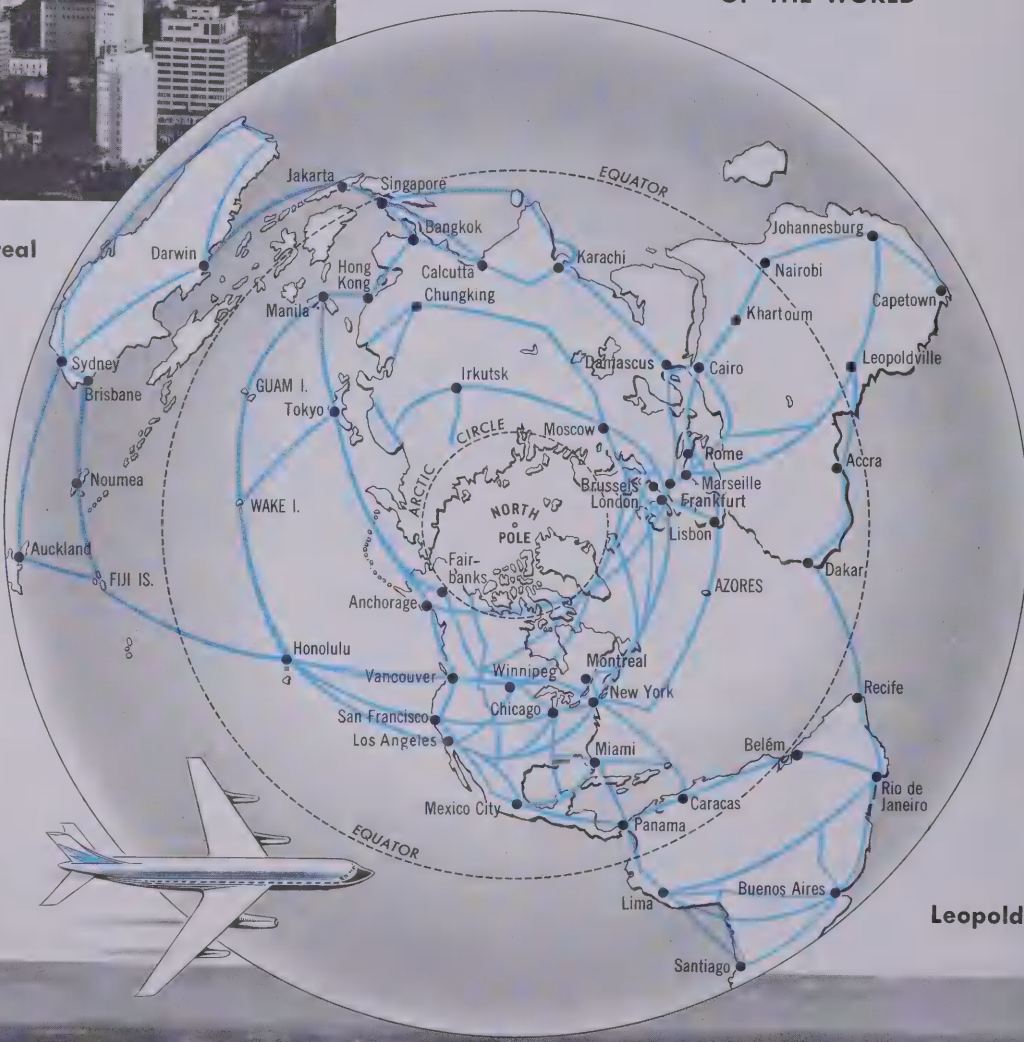
2. Give the map grid of each of these places. Use the map index.

- a. Inuvik d. Whitehorse
b. Yellowknife e. Fort Chimo
c. Cambridge Bay



**AIR ROUTES
OF THE WORLD**

Montreal



Leopoldville



Living in the Tropical Rainforest



A COMMUNITY IN THE CONGO

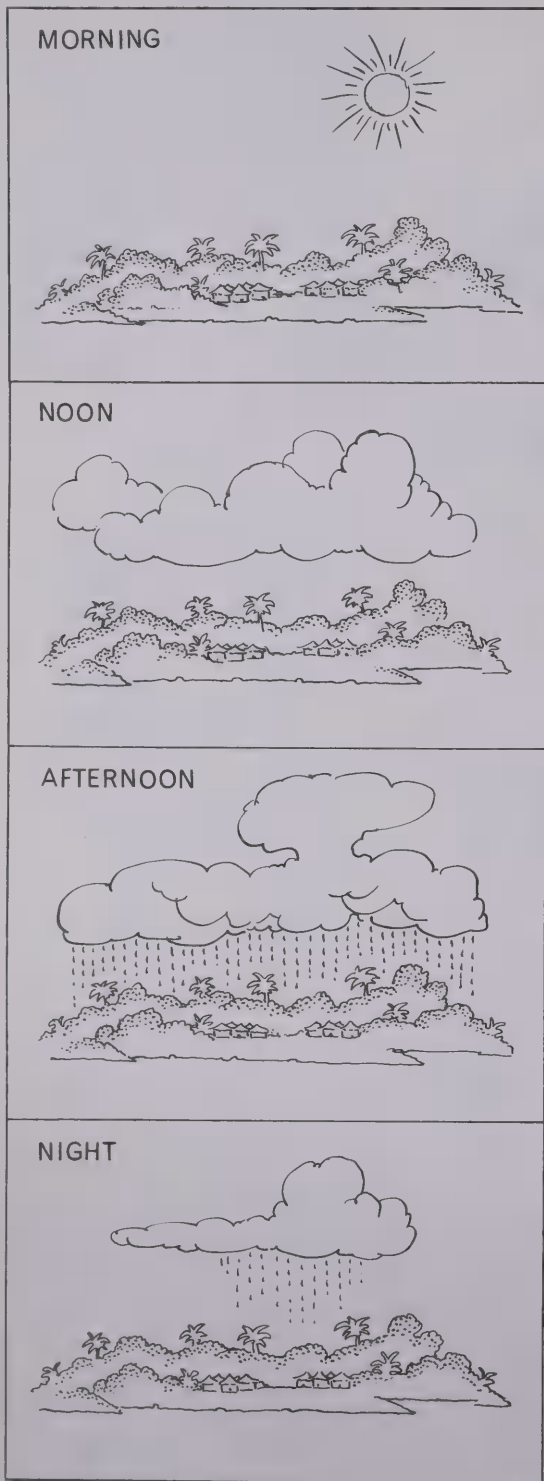
A Trip to Leopoldville

We have thought about different kinds of communities in Canada. In particular we looked at our own community, and then we visited Martha and Jonasee in their Arctic Community. Let us now go to Montreal, Canada's largest city, to begin a trip to another part of the world — a rainforest region in central Africa. Travelling by jet plane, we can reach the city of Leopoldville, in the Congo, one day after we leave Montreal.

From Montreal we fly first to Brussels, Belgium. In the early evening we leave Brussels airport and fly all through the night. When we awake next morning our plane is circling the city of Leopoldville,

which stretches along the banks of the Congo River. From the air we see streets and roads, office buildings, and houses attractively laid out amidst trees and flowers. We realize that Leopoldville must be an important business centre. From the air it looks quite similar to ■ Canadian city. But the land surrounding the town is covered with heavy forest, sparkling green in colour.

We are not to spend much time in Leopoldville as the rainforest community we are to visit is many miles up the Congo River. From the airport we must go to the waterfront to take a steamer up river to the village where we are to visit Lele, an African boy.



As we make our way from the airport to the waterfront we are impressed by the lush green growth of the many plants growing in gardens and along the streets. The weather reminds us of a hot, sticky day in summer in Canada.

"Please hurry," says our guide. "We want to reach our boat and be away from the city by the time the rain comes."

"How do you know it is going to rain?" we ask.

"It always rains in the afternoon," our guide tells us. And he is right.

How would you like to live where the weather is almost exactly the same every day of the year? In tropical rainforests, each day is very much like every other. All through the morning the temperature rises. About two o'clock it has soared to around 90 degrees. The voice of every bird and animal is hushed. The leaves which were so fresh and wet in the morning are limp and hanging; flowers drop their petals.

On most days a heavy shower falls in the afternoon and brings a welcome coolness. First, if the forest is near the coast, the cool sea breeze which had begun to blow about ten in the morning dies down. The heat and electric feeling of the air are

Figure 1.

HOW IT RAINS IN A RAINFOREST REGION

Morning: A clear sky. Evaporation starts.

Noon: The evaporated water forms clouds.

Afternoon: Rain.

Night: A little rain. The cloud disappears.



Map of the Congo showing rainforest area

almost impossible to bear. Everyone and everything is uneasy, but too hot and tired to move. White clouds appear in the sky. They gather and tower up, black along their lower edges. Suddenly the whole sky becomes black. The blackness spreads up until the sun is covered. Then comes a rush of mighty wind, swaying the tree-tops. Bright flashes of lightning cross the sky. There is a crash of thunder, and down comes the rain. In fifteen or thirty minutes the storm is over, but bluish-black clouds hang in the sky.

Towards evening, life stirs again. An uproar of noise from birds, animals, and insects rises in the trees and bushes. The following morning the sun rises in a cloudless sky; the day becomes hotter, and again clouds form, as on the day before. Each day is more or less the same throughout the year.

DO

1. Using the map on pages 22-23, trace a route from your home to Montreal.
2. By what kind of transportation would you be likely to travel to Montreal?
3. Using the map on page 48, trace the route from Montreal to Leopoldville.
4. Which part of the day in rainforest regions is like a Canadian summer day?
5. Which season is not mentioned? Why?
6. What does evaporation mean?
7. What country is Leopoldville in?
8. Copy this chart into your notebook and complete it.

A TRIP TO LEOPOLDVILLE

	DEPARTURE	DESTINATION
City	?	Leopoldville
Country	?	?
Continent	?	?



Rainforests of the world

Where are Rainforests Found?

CLIMATE

Hot, wet climates like that of the rainforest are often called “tropical” or “equatorial.” They are found in the tropical regions of the earth close to the equator.

Rainforests have steadily high temperatures because the sun is always high in the sky, almost overhead, all year round. Day-time temperatures usually rise to nearly 90 degrees, and occasionally over it; and at night the temperature rarely falls below 70 degrees. There is so much moisture in the air that the heat of the day is very uncomfortable, and the drop in temperature at night causes heavy fogs and dews.

There is no dry season, only a less rainy one. It rains at all seasons, and the rain in any one place usually begins and ends at just about the same time each day. The rain usually falls in the afternoon when the air has had time to become well heated. (See Figure 1, page 50.) The sky is often cloudy, the air wet. Living in a climate that is so wet is not comfortable.

DO

In your notebook answer these questions.

1. Near what east-west line on the map (above) are rainforest regions found?
2. How many countries that are in the rainforest region can you name?

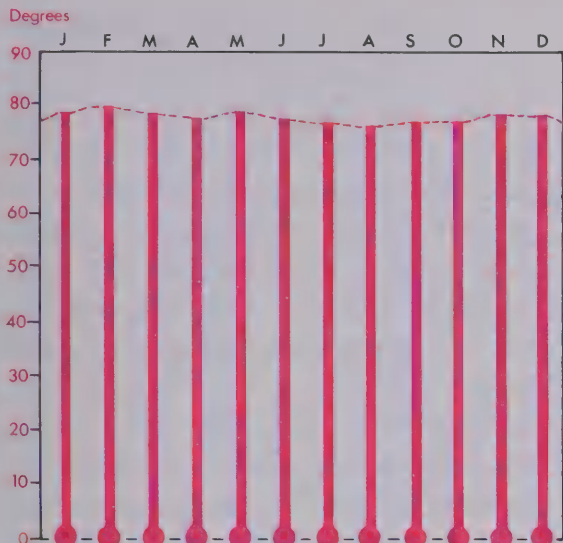


Figure 2. Average temperature, New Antwerp

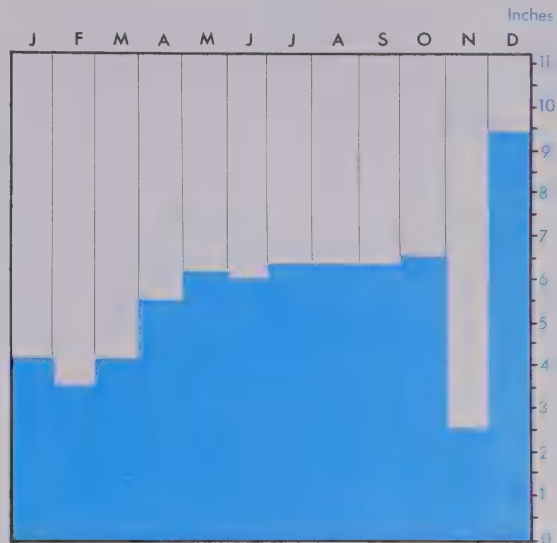


Figure 3. Average rainfall, New Antwerp

Figures 2 and 3 show temperature and rainfall for one year at a city in the tropical rainforest region. Find New Antwerp on the map on page 51.

DO

Use Figures 2 and 3 to answer the following. Write answers in your notebook.

1. Which 4 months are the hottest in New Antwerp? (Which 4 months are the hottest in the region where you live?)
2. Which is the wettest month at New Antwerp?
3. Which is the driest month?
4. Write a weather forecast for one day in a rainforest region.

Travelling in the Rainforest

LAND

As our small steamer travels upstream we catch sight of big, lazy hippopotamuses in swampy places along the shore, half hidden by tall grasses. Dozens of ugly crocodiles are sunning themselves on the sandbanks and in the shallow water. The thick forest comes right down to the banks of the river, and often we can see bands of monkeys swinging from limb to limb among the trees.





Figure 4. Three layers of vegetation in the rainforest

Our guide tells us that the great heat and moisture help the rainforest to grow quickly and to great heights, as tall trees reach upwards to the light. Branches and

A view of the Congo River



leaves of the forest giants usually begin high up on the trunks. Below this canopy is a second layer of tall trees, while below may be found a third layer of smaller plants and young trees growing closely together. Beneath the young trees, creepers and undergrowth form thick tangles that make movement very difficult. Because of the thick cover of branches and leaves high overhead, the floor of the rainforest is gloomy and dim.

The ground itself is wet and swampy, with rotting plants and many mosses and fungi growing. Travel through such forests, we learn, is difficult. Trails must be cut through the undergrowth, but they are soon overgrown. Whenever they can, Congo people prefer to travel on the many rivers that flow through the forest. Most towns and villages are on the riverbanks, or close to a river or stream.

DO

In your notebook answer these questions.

1. What would the river steamer carry besides passengers?
2. What sights does a traveller see on the Congo River that he would not see on a Canadian river?
3. From Figure 4 tell why:
 - a. the tallest trees are not on the edge of the forest
 - b. there are fewer branches on the lower trunks of the taller trees
 - c. we never see pictures of a rainforest bare of leaves, as our trees are in autumn and winter.

On the Way to Lele's Village

FACTORS

The Congo River and the rivers that flow into it, although there are waterfalls in a number of places, serve as a splendid gateway into all parts of the forest. We are going to the Ubangi Valley to visit Lele, who lives with his family near one of the many *tributaries*, or branches, of the great Congo River.

At last we come to the place where a smaller river joins the Congo River. At the stern or rear end of our steamer is a big paddle wheel. It has been stirring up the brown muddy water as it pushes us along. Now it slows and stops. And there are Lele and his father, in a dugout canoe, coming from the smaller river to meet the steamer.

Lele's canoe comes alongside the steamer. We get into it, and Lele and his father again drive their canoe forward with strong, even strokes of their paddles. Their village is a few miles up the smaller river. The dugout canoe is made from the trunk of a tree. It is called a dugout because the trunk is hollowed out with a hatchet and by burning. Only the ends of the log are not hollowed. These are shaped into points so that the canoe will slip through the water easily.

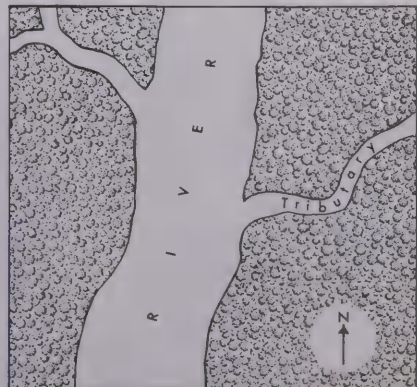


Compare this dugout canoe with canoes used in Canada.

A dugout canoe brings fruit to sell to steamer passengers.



Figure 5. River and tributaries



DO

Write answers in your notebook.

1. Prepare a list of directions for constructing a dugout canoe.
2. Look at Figure 5. Would a paper boat placed on one of the tributaries float northwards or southwards?



Scenes in Lele's village. What do these pictures tell you about "factors" in this community?

Lele's Village

FACTORS
▼▼

Soon we come to a little clearing beside the river, where there are several other canoes at the edge of the water. Before us stands a village of small huts made of baked mud.

Lele's mother comes to the edge of the village to meet us. Lele's sister, Bimbi, runs up too. Over her shoulder peeps baby brother, who has been riding in a sort of sling on his big sister's back.

As we walk from the river bank to Lele's house we see a group of women shaping clay from the river bank into bowls and jars, which they set in the sun to dry and harden. Several others are weaving baskets, large ones from the straw-like ribs of palm leaves and smaller ones from the ribs of banana leaves. The large baskets, we learn, are for carrying fruits and vegetables from the garden patches, and the smaller ones are used, like the clay bowls, for storing food. We see a few men weaving, too. One is weaving a fish net, which he will use to catch fish from his dugout. Another is weaving a fish trap, which looks like a long round basket, closed and narrow at one end and open and wide at the other. Lele tells us that several of the women and older children are likely tending the garden patch, or gathering fruit from the trees around the clearing.

The huts or houses are built in rows on both sides of the village street. Lele's

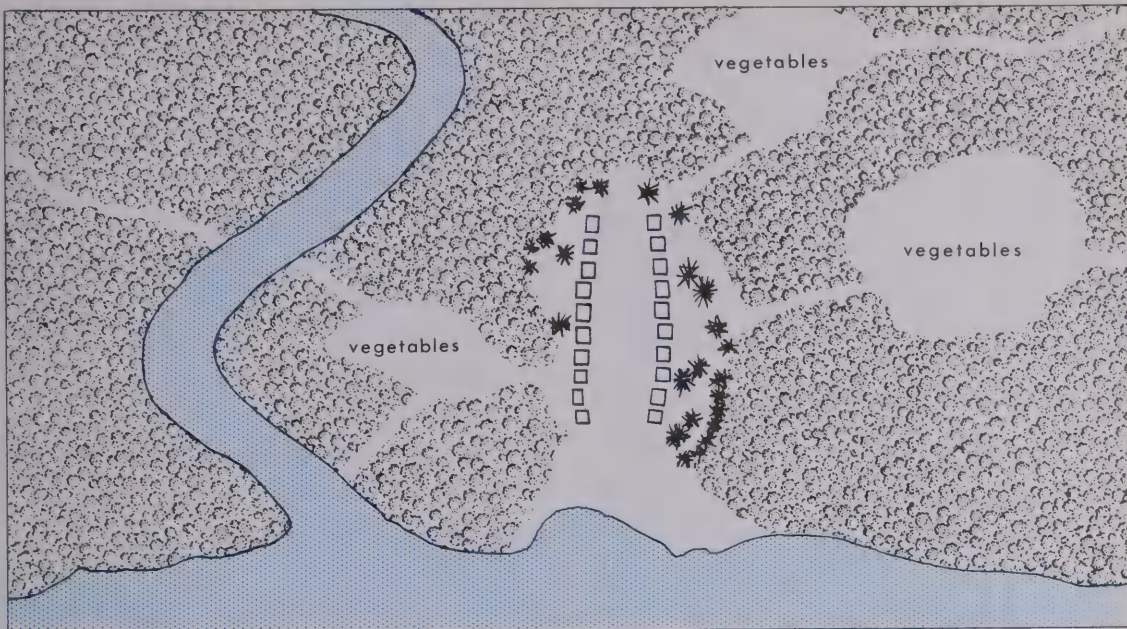


Figure 6. Lele's community

hut has a tall peaked roof of bamboo and palm leaves. The framework of the walls is made of small poles that Lele and his father cut in the forest and bound together to make them firm. Wet mud from the riverbank is plastered over the framework of the wall. There are no windows in Lele's house, and the floor is of hard-packed earth. All the materials used in the building are easily obtained from the forest.

Can you imagine why the roof is so steep? Why do you suppose there are no windows?

Inside, Lele's house is quite dark, and there is little to see or do in it. Lele and his people do not live in their houses nearly as much as we do. They sleep in their houses, of course, on beds of leaves. Sometimes they come indoors out of the

rain, though often they sit outside under the eaves when the rain is falling. They cook their meals outdoors over open fires, and eat there also.

DO

1. Figure 6 (Lele's community) does not have a legend. Copy the symbols into your notebook and make a legend for the map.

2. Copy this chart into your notebook and complete it.

A NATIVE HUT

PART	MADE OF
Roof	?
Walls	?
Floors	?
Basement	?
Windows	?



Fishermen lower fish traps into the rapids of the Congo River near Stanleyville. Why would travel be difficult in this area?

Into the Forest

FACTORS
▼▼ ▼▼

While the rainforest people can generally get food by hunting, fishing, and gathering wild berries and roots, Lele and his family and neighbours also grow a few vegetable crops. Lele offers to take us to the place where his family have their "farm." We start out on a trail at the end of the village.

Trails in the rainforest are so narrow that they make leafy tunnels in which you can see only a few yards in any direction.

The sun does not shine through the thick branches above the trails. The forest around us seems deserted of animal life. Lele tells us that this is partly because the animals' colouring is like that of the forest behind them. Also, most wild life lives in the trees, where travel is easiest and food is most easily found. The silence of the forest is broken by the buzz of mosquitoes, the chatter of monkeys, and the scream of startled birds. There are many snakes, lizards, and other crawlers, Lele tells us, but they are not often seen. They lie coiled on branches or glide swiftly from sight. Many bright coloured birds flit through the trees, looking like gems in the few rays of sunlight.

The rainforest, Lele tells us, is also the home of the gorilla and the chimpanzee. It is the home of the Congo peacock, and the okapi, a smaller relative of the giraffe. Lele tells us we will be very lucky if we see one of these, for okapi are very shy and are also fast runners. They are coloured much the same as the forest through which they run, and so are very hard to see.

At last we come to the patch of land which the people of Lele's village farm. It is only a clearing in the forest compared to farms in our country. However, in such a hot moist climate even a small patch of land will grow quite a lot of food.

Planting begins after the first heavy rains. A hole is made in the earth with a stick. A few seeds are then put in, and earth is filled in over the seeds with the foot. Different kinds of vegetables are



A clearing is made by chopping down trees and burning undergrowth.



Vegetables growing in a forest clearing

grown. Growth is very rapid because of the hot climate, and the women must work part of every day at hoeing the cleared patches and weeding the growing plants. Neighbours and relatives gather and work together and often the work is done to the rhythm of drums and songs.

Fruit is gathered from the forest trees around the village and the cleared land. Bimbi and the smaller children are kept busy scaring birds from the growing seeds and plants in the garden patches.

When the soil can no longer grow good crops a new patch of land must be cleared and the farm moved to it. Such moves happen every few years, until all the land around the village has been used. The old clearings are soon overgrown with trees and creepers. When the clearings get to

be too far from the village, the tribe or a part of it moves away.

DO

Answer these questions in your notebook.

1. How does the colour of many forest animals help protect them from hunters?
2. Why is it best to build a village on or near a river?
3. Copy this chart in your notebook and complete it.

LIFE SEEN IN THE FOREST

Animals: ?
Birds: ?
Insects: ?
Reptiles: ?



A native girl holds up a manioc root. This will be dried and ground up to make flour.

Rainforest Foods

FACTORS

There are no cattle or sheep in Lele's village. In such hot, wet regions there is no pasture for them, and the many diseases, spread by insects such as the dreaded tsetse fly, would attack them. Dogs, pigs, chickens, and a few goats are the only farm animals in the Congo. As a result, Lele's family eat mostly vegetables and fruit. Should a hunting party return with a wild pig, monkeys, or other small animals, the whole village celebrates the occasion with songs and dances.

Few livestock does not mean that there is not enough food. Bananas and fruits like them ripen all year round, and beans and root crops such as yams and cassava, or manioc, are harvested at all seasons. (Yams are like big sweet potatoes. Cassava or manioc roots are dried and ground up to make flour.) The streams contain many

kinds of fish; Lele and his father very often bring home several fine fish from their nets or fish traps for the family meal.

Lele's mother and Bimbi come back from their garden patch, carrying manioc roots in the baskets on their backs. The forked stick mother uses for a hoe is placed against the wall of the hut, and mother starts to prepare a meal. Bimbi crushes some dry manioc root by pounding it with a wooden stick to make flour for manioc bread. Meanwhile Mother is opening palm fruit one by one.

Oil palm trees grow wild in the Congo forest. When Lele's mother needs the fruit of the oil palm for cooking, Lele or his father will climb an oil palm near the village. Near the top of the tree grows a big bunch of fruit. When bunches of fruit have been cut from a few trees, Lele carries them home to be crushed. Each fruit is about the size of a date and has a thick skin. Inside, around the hard centre or kernel, is a very oily soft part, or pulp. The oil squeezed from the pulp takes the place of butter or cooking fat for the people of the Congo.

Of the oil palm fruit, Lele's mother uses only the oil pressed from the pulp. The hard kernels are spread in the sun to dry. Later Lele's father will take them in his canoe to the nearest trading post, where he will trade them to a trader for things that cannot be made in the village.



From left to right: a bunch of bananas, some manioc roots, and a cluster of oil-palm fruit

The palm nuts, an important export, are as good as money to Lele's people. By trading them the people of the Congo can get knives, fish hooks, guns, and the bright cloth that the women like for making skirts. The tall oil palm thus supplies them with both food and money.

While Lele and his family are having their evening meal of bananas, manioc bread with palm oil for butter, and the fish Lele's father caught earlier in the day, we hear the beat of drums from somewhere in the forest. Everyone stops to listen. It is a message from a neighbouring village. From the glad smiles around us we know it must be a pleasant message. Lele tells us that his elder brother, Nya Kami, is on his way home and will be in the village tomorrow morning. The whole village is very happy, and there will be a holiday tomorrow to celebrate the homecoming.



Harvesting palm fruit

DO

Copy this chart into your notebook and complete it.

RAINFOREST FOODS

MEATS

VEGETABLES

A World Health Organization inspector visits a market. What goods are being sold?





James Flumbo

FACTORS
▼▼

Lele's brother is a strong young man of eighteen. As a boy he hunted with bow and arrow, helped with the work in the village, and learned the wisdom of the tribe during long evenings around the camp-fire. Last year Lele's father sent him with a group, gathered by the chieftain of the village, to work for a season on a cacao plantation.

In the Congo there are many plantations where oil palms, rubber trees, or cacao trees are grown. Such plantations need many people to help with the gathering of the palm nuts, cacao beans, or sap from the rubber trees; and many young men leave their villages for a season to work in the plantation.

When Lele's brother arrives the next morning he is wearing brown shorts and a cotton vest instead of the homespun loin-cloth of his childhood. He has brought with him the money he has saved from his wages at the cacao plantation, some lengths of bright cloth for his mother and Bimbi, and presents for all the family. He has learned to speak some French and English and he even has a new name. Instead of calling himself *Nya Kami* he has taken the name of James, and has added his father's last name. He is now called James Flumbo.

1. Workmen's houses on a plantation

2. Before starting a plantation, land must be cleared and roads built.

3. A plantation of oil palms



Opening cocoa pods

PROJECT 1

Figure 7 is a plan of the cacao district James worked in. Notice the following: (a) location of the main road, (b) location in the new farms, (c) the kind of crops grown on the farm, (d) the source of water.

Figure 8 is a plan of a village near the highway in the cacao district. Find (a) the area for homes, (b) the business area, (c) the recreation area.

Figure 9 shows the compound of an important cacao farmer. Notice the following: (a) the drying mats for cacao beans, (b) the kitchens and washrooms, (c) the fire places.

Make a large map of the compound using the following directions:

1. Lay a piece of paper along the side of the compound.
2. Mark both edges with a pencil.
3. Draw this line ten times longer on your big paper.
4. Repeat (2) and (3) for every line on the plan.
5. Print the names of parts of the compound on your plan.

Figure 7
PLAN OF A COCOA DISTRICT

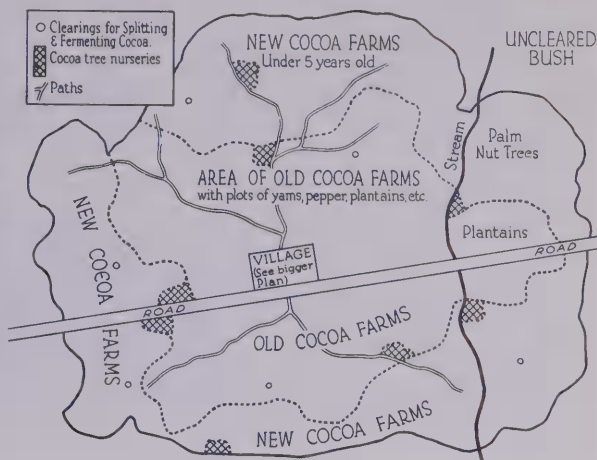


Figure 8

TYPICAL NEW VILLAGE LAYOUT

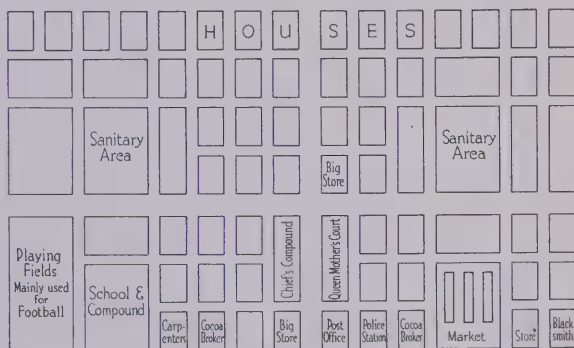
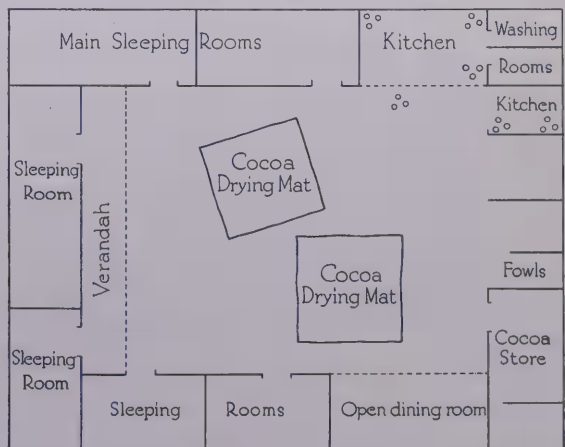
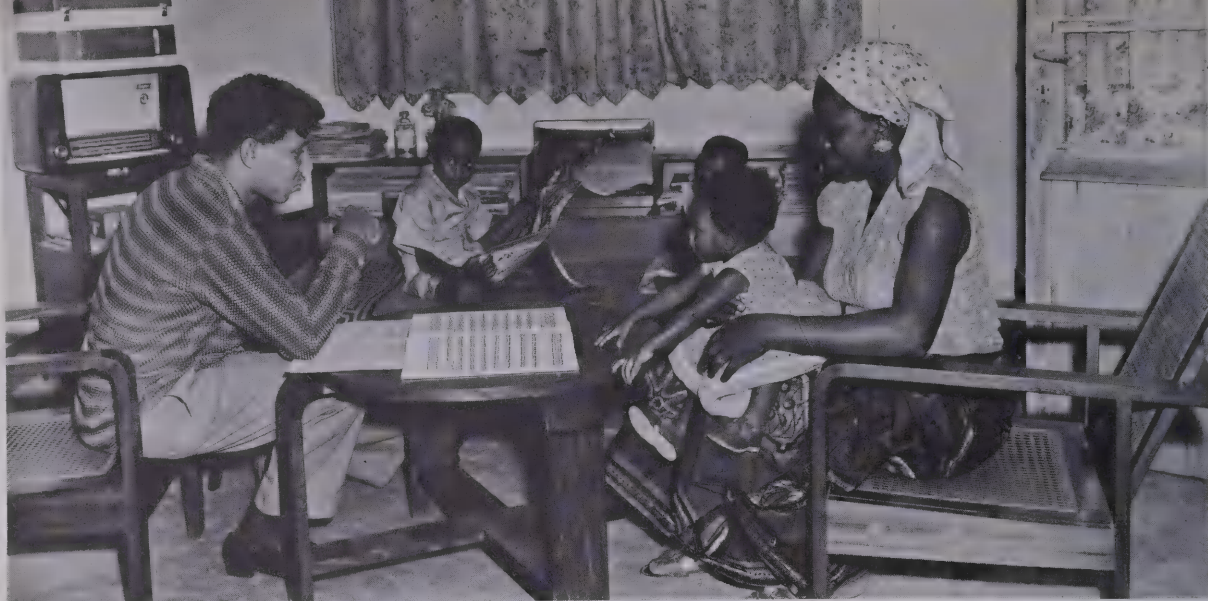


Figure 9

PLAN OF COMPOUND (a cocoa broker and farmer's house) IN THE BIG VILLAGE



Fireplaces



A modern African home. Compare it with your home.

Changing Ways

FACTORS

The village girl long since arranged to be his wife is waiting for James. They will live in a mud house of two rooms instead of one. Because James has seen another way of living during his season on the cacao plantation, he will want to have a wooden bed, a table, a lantern, and a tin trunk for his clothes. He has brought back many new ideas from the plantation. Soon he plans to spend another season working on a plantation to earn money for a gun and a bicycle. Instead of being satisfied with a vegetable patch for his own use he will want to plant some coffee trees or a patch of rubber, to get crops that he can sell for money. When his children grow up he hopes to send at least some of them to school.

Lele listened to his brother with wide eyes. Lele has been only as far away as the nearest native villages, but James has seen several trading towns. Once he even

visited Stanleyville, on the north bank of the Congo River.

Lele's village is still far from a highway. He has seen airplanes flying overhead, for there are regular flights between the larger towns. Africa is changing very rapidly.

When Lele is a little older he, too, will spend some time working on a plantation. Perhaps he will even attend a modern school and become a doctor or a teacher.

DO

1. Copy the following chart in your notebook and complete it.

COMPARING COMMUNITIES

PLACE	KINDS OF ROADS	KINDS OF BUILDINGS
Leopoldville	?	?
Lele's village	?	?

2. List the changes Lele's brother will make when he settles in his new home.

Modern inventions, and the need for forest products, are changing the Congo. Planned use of land and water is improving the farming. New plantations of rubber, cacao, and palm oil can be found everywhere.

Tropical lands have, as yet, little manufacturing. The hot wet land has little coal. However, the Congo River can supply hydro-electric power. Over its long course the river drops nearly 1000 feet, with many waterfalls. Once this water is harnessed there should be more than enough hydro-electric power for modern factories to be opened. The Belgians and the French have established telephone, telegraph, and radio stations, although the natives still use the drum to send messages through the rainforest. The African drum carried messages long before the invention of the telephone, telegraph, or radio.

More and more schools are being provided for the Congo people. Scientists are

learning how to overcome the diseases common in hot lands, such as malaria, yellow fever, and dysentery.

Young people in far-off villages hear cars racing by on the roads, and airplanes droning overhead. Most are within walking distance of a mission station, a government headquarters, a plantation, or a mine. There are chances for schooling, jobs, medical attention; chances to hear radios bring world news, sometimes to see moving pictures. Old ways are passing. Young people believe it is their job to build a new Africa. Lele hopes that he will be one of the new young leaders.

DO

1. List several new discoveries that are being used in the Congo.
 2. What kind of power could be used to run factories in the Congo?
-

SUMMARY QUESTIONS—3

1. Explain the lush growth of the African rainforest.
2. Why do Lele's family eat little meat?
3. Why have children like Lele seen little of the world outside their village?
4. How is Lele's life likely to be different from his father's?

THE MAP SHOP

Scale

Travelling over the earth is the best way to understand its size. If you have driven over the earth by car, you will know what a few inches on a map can mean. Riding in an airplane gives us an even better idea of what the earth is like. We can also get an idea of the shape and size of the earth from a map.

We cannot make maps life size, but there are ways of showing how much of the earth's surface a map stands for. An accurate map is always *drawn to scale*; that is, a certain measurement on the map will always stand for a certain distance on the earth. This is shown on the map and is called the *map scale*.

To see what scale means, let us start by making a map of a cocoa compound. The compound is thirty feet by forty feet. We cannot make our map the same size as the compound, so we use a scale. Let us say 1 inch on our map stands for 10 feet in the compound. How wide and long will our compound be?



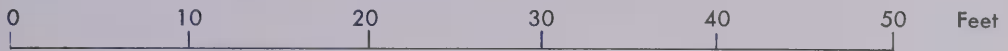
It will be 3 inches wide and 4 inches long.

We can show our scale in several ways:

a. 1 inch stands for 10 feet. This is usually written:
1 inch to 10 feet.

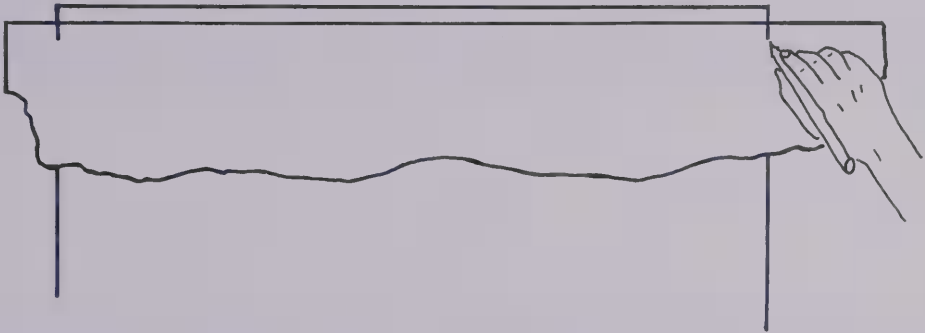
b. We could give the scale in inches: *1 inch to 120 inches.* (We can say our map is $1/120$ of real size.)
This scale is usually written: *1 : 120*

c. We could draw the scale for the readers of our map to see:



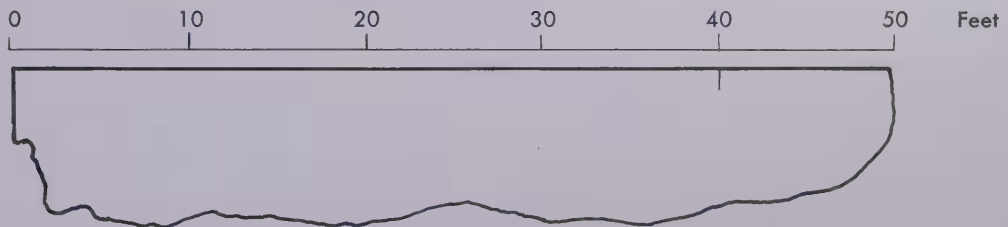
This is called a *line scale* or *graphic scale*. We use it this way:

1. Lay a piece of paper along the side of the map of the compound you have drawn.



2. Mark the paper at both ends of the compound.

3. Lay the paper along the scale with the left-hand mark at 0.



4. Now read the distance at the point where the other mark touches the scale.

5. We can see that the compound is 40 feet long.



Damascus, the capital of Syria

Looking down onto a desert oasis



Living in the Desert



A COMMUNITY IN SYRIA

A Trip to Syria

LOCATION

Saleem and his sister Jameela live in a desert land. If this makes you think that their home must be in a dry and useless place, you are wrong. You are right to think that deserts are mostly that way, but Saleem and Jameela live in a spot in the desert where there is always a supply of water, a place where many trees, fruits, and vegetables grow in the rich soil. Such a place is called an oasis.

Saleem and Jameela live in a village on an oasis in the country of Syria. The capital city of their country is Damascus. Their village is sixty miles south of Damascus.

Using the map on pp. 22-23, trace the route you would take from your community to the capital city of our country,

Ottawa. Now trace your route to Montreal, our departure city for our visit to Saleem and Jameela in Syria. From Montreal we fly across the Atlantic Ocean to Frankfurt, Germany, and from Frankfurt to Damascus, Syria. (See map, p. 48).

In Damascus we rent a car to travel to Saleem and Jameela's village.

DO

Copy this chart in your notebook and complete it.

WHERE WE LIVE

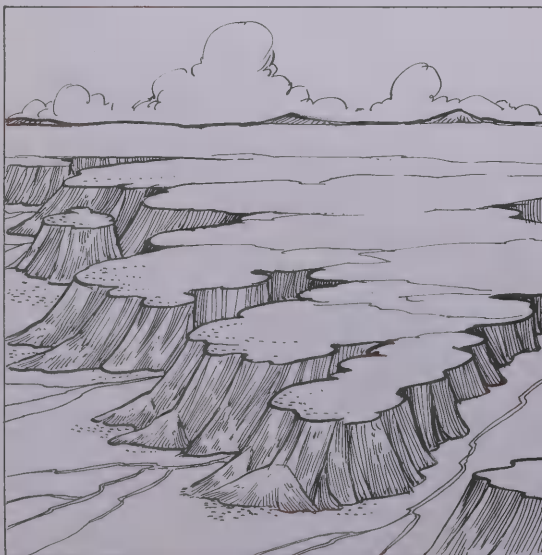
	CAPITAL CITY	COUNTRY	CONTINENT
Us	?	?	?
Saleem and Jameela	?	?	?



Describe the land shown in these two pictures. What do the pictures tell you about "factors" in desert communities?



Figure 1. Plateau



Desert Land

LAND

As we travel to the village we stop our car. The temperature is 120 degrees in the shade. The wind, blowing hard from the south, feels like the heat from the open door of a furnace. The outside of our car is so hot it burns our fingers to touch it. As we look around we see rocks covering the ground. Lack of water is what makes a desert. Where there is water, crops can grow; but large stretches of desert receive no rain for years at a time.

Sometimes clouds appear and rain falls, but often before the water can reach the earth the raindrops are dried up by the hot, dry air. At other times there are thunderstorms. These cover only a very small area at one time. Some areas receive a light rainfall (or snow) in winter, but none in the summer at all. Parts of the desert are rocky. Other parts are level plains covered with stones and gravel. Much of the land is high country called a plateau.

Not all the desert is bare. Much of the plateau land and other places are covered with scraggly plants, coarse grass, or short bushes.

Sand dunes, which are large hills of sand, cover only a small part of the desert. The dunes are forever on the move. They sometimes bury whole villages.

Deserts cover large areas. The Sahara Desert is about three-quarters as large as all Canada — and the Sahara is only a part of a much larger desert. Another part of that large desert is the Syrian Desert. This is where Saleem and Jameela live.



Map of Syria

Use the map of Syria (above) to answer the following questions. Write the answers in your notebook.

1. Tell whether the land is mostly
(a) flat (b) hilly (c) mountainous.
2. What large body of water is west of Syria?
3. What river flows into this body of water?
4. What rivers flow through Syria?
5. Why are more towns in the north and west rather than in the central and southeast parts of the country?
6. What countries are neighbours of Syria?

Damascus to Baghdad. Why is the bus followed by a repair truck?





Hot deserts of the world

Desert Weather

CLIMATE

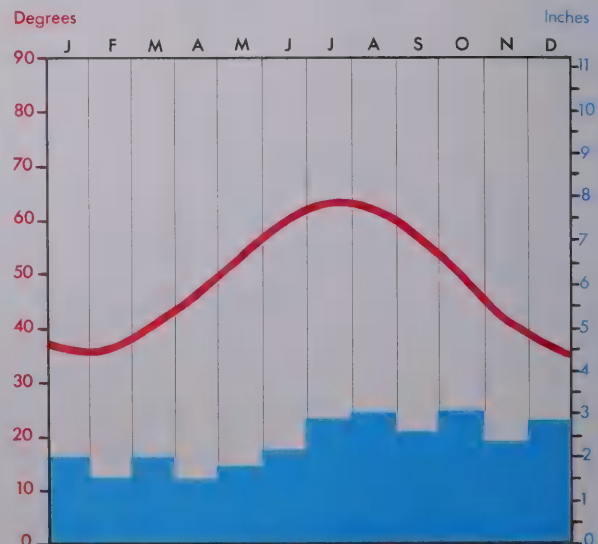
We know a little about the weather in Saleem and Jameela's village from the story a traveller told us.

"The coolest part of the daytime was at six o'clock in the morning. The temperature was 98 degrees. During the day the temperature stayed between 110 degrees and 115 degrees, with a hot wind. At six o'clock that night it seemed to get hotter. During the night the temperature fell considerably, and was ideal for sleeping."

Dawn comes suddenly in the desert. While the moon is still in the sky, the sun comes up flaming red. The heat is tremendous. The sun burns through cotton clothing and splits and blisters the skin.

Figure 2

Average temperature and rainfall Damascus, Syria



Desert winds, particularly between January and March, are feared. They blow first from one direction and then another. If you are caught in a sandstorm you will cough sand, spit sand, and even weep sand. The wind will blow the shouts out of your mouth. Unless you are careful you are likely to become lost.

Night comes as suddenly as dawn. In some parts of the desert the nights are quite cool — even below freezing.

Very little rain falls on the desert. In some places it may not rain for ten years or more. Because there is little rain, some rivers dry up and flow only after a rainfall.

A Desert Village

FACTORS

Saleem and Jameela are happy to see us. They waste no time in showing us their village. They explain that the streets are very narrow because oasis land is precious and every inch must be used for growing food.

Some of the houses in the village are built of stone, but most are built of bricks. The bricks are made of mud mixed with a little local cement. After they have been shaped and dried in the sun the bricks are ready for use.

Saleem and Jameela's house is square, and it is built around an inside courtyard.

Syrian mud-brick houses on the site of a Roman town. How do "factors" here differ from "factors" in Lele's village?



Most of the housework is done in this court. From the court a door opens onto the street. The flat roof is held up by old date-palm trunks. Palm trunks and stalks were used to make the roof itself. Over these was placed a layer of earth, dampened and rolled down until smooth and hard.

The house is two storeys high. There are also many one-storey and a few three-storey houses in the village.

Here Saleem and Jameela live with their parents, three younger brothers, and a baby sister. Like most village people they have a large family. The family find the flat roof a handy place for many things. It is used for drying fruits and vegetables. Jameela likes to mind the younger children up there. From the roof she can watch what goes on in the street. The roof is a fine place for resting and visiting. Mother

and Jameela love having visitors. They do not get out as often as Father and Saleem. Most of their life is spent in the courtyard and on the roof top.

Many thousands of people may live on an oasis that has plenty of water. Only a few people live on an oasis with little water.

DO

1. In your notebook make a legend for a sketch map of Saleem and Jameela's village.

2. Copy this chart into your notebook and complete it:

COMPARING HOMES

	OURS	SALEEM AND JAMEELA'S
Roof	?	?
Walls	?	?

Map of a town like Saleem and Jameela's



Desert Farming

FACTORS
▼▼

Saleem takes us to see one of the wells on the oasis. On some oases the water comes from springs, but here wells have been dug. Water is brought up from the well by means of a *shadoof*.

A long pole with a bucket at the end is held by a bar. The bucket is lowered into the well where it fills up. A man pushes the other end of the pole down, and the bucket rises and empties into a trough. The water flows through the trough to the fields. Where the pole rubs on the bar, a sound is made. It is a creaking noise, but the farmers like the sound of it. Sometimes they even make it louder by tying an empty gourd or can to the bar. This is the music of the oasis. Power pumps are coming into use now, but it will be a long time before the shadoof is replaced.

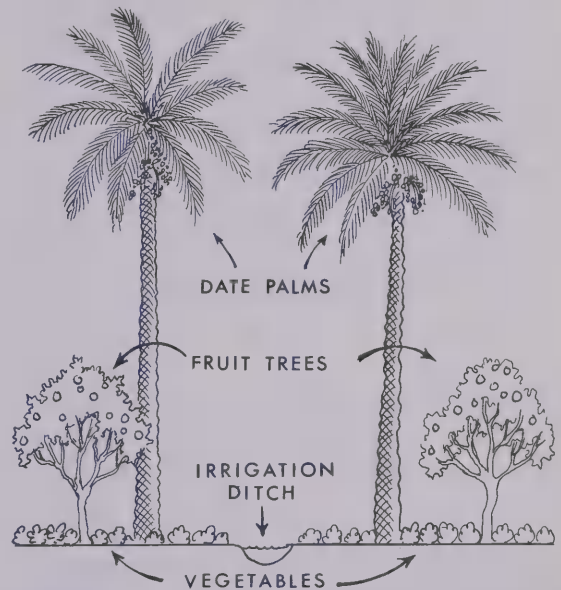
Desert soils contain many minerals. Where there is a good water supply these soils may be used to raise many crops. In Saleem and Jameela's village there is enough water for "three-storey farming" to be carried on. The first "storey" is wheat, barley, and vegetables. The second storey is low fruit trees such as apricot, peach, almond, orange, apple, and olive. These trees are planted far enough apart so as not to shade the first storey too much. Tall date palms, planted far apart, are the third storey.

Date palms are very beautiful trees. The trunk is straight and tall. The leaves grow all together out of the top and look like a crown of feathers. The clusters of dates are a rich golden colour. The clusters



This *sakia* draws water from a well and pours it into an irrigation ditch.

Figure 3. Three-storey farming



Clusters of dates on a palm tree



are large and heavy, weighing up to forty pounds each. The roots of the date palm are very long and can reach far down into the ground for water.

Date palms are the most important food plants of the desert. Some dates are eaten fresh, but most are dried. The dates we get are dried. The desert dwellers often pound dates and make them into cakes. The trunks of date palms may be used for burning in stoves, or as building materials. Woven baskets and bags are often made from the leaves. Coffee can be made from the roasted fruit seeds. Rope is made from the fibre. Camels are fed on dates if their food runs out. So valuable are the date palms to the oasis dwellers that people will not sell the growing trees even when they sell the ground on which they grow. They continue to own and care for the trees, although the ground on which the trees are growing is no longer theirs.

DO

1. In your notebook make two lists under the following headings.

CROPS

IN A DESERT OASIS

IN MY COMMUNITY

2. Sketch a date palm in your notebook. Around it list the things it supplies to the desert dwellers.

Radio-equipped cars inspect pipelines that cross the desert.

Village Life

FACTORS

Saleem shows us the oil pipeline outside the village. It seems to go on forever. From the desert the oil is pumped to the coast where it is pumped into special ships, called oil tankers. The tankers take the oil to many countries.

Saleem and Jameela cannot see as far as the tankers, but they can see in the distance a line of sand dunes. They know that behind them is the high country of the Al Hamad Plateau. This makes Saleem think of the herds of hundreds of camels that come to the village from the high country.

"When will the camels come again, Jameela?" he asks.

Jameela, who is nine years old, two years older than her brother, explains that the camels will come when the summer is at its hottest. "The Bedouin people will not be able to find pasture for their camels, goats, sheep, and horses. They will bring them to our village for food and water. They will pitch their tents. Soon you will see a tent city grow up."

Then she adds thoughtfully, "I hope they will bring many rugs to sell. I like the colours and patterns so much."

"I like to watch the camels," says Saleem

Jameela is not very fond of camels. "They are so bad-tempered. They frighten me the way they groan and snarl at their owners," she says.

"You might be cross too, if you had to carry such big loads," Saleem says. He likes to hear only good things about his favourite animals.





The muezzin on the balcony calls the people to prayer.

Just then the children hear a familiar sound—the call to noonday prayers. Like most Arabs, Saleem and Jameela are Moslems. Moslems, like Christians and Jews, believe in one God. They call him Allah, and follow the teachings of the prophet Mohammed. *Mohammedan* is another word for Moslem.

The building where Moslems worship is called a mosque. Many mosques are very beautiful. From the balcony at the top of the minaret, or tower, the *muezzin* (crier) calls the people to prayers five times a day.

After noonday prayers it is time for the noon meal. The sun is high in the sky. No clouds can be seen. The children walk slowly through the dusty, narrow streets. They are hot and hungry. Even the bazaar, the market place, does not interest them. Jameela carefully walks in the shade of the date palms.

At home a light meal of dates, coffee, and little cakes is served. The family sit on rugs and cushions.

PROJECT 1

An Oasis Model

1. On a large sheet of plywood or a large table spread a thin layer of damp sand.

2. Mould the sand to look like the land around Saleem and Jameela's village.

3. Over the sand spread two or three layers of cloth that has been soaked in thin plaster of Paris.

4. When the cloth has dried you may pick it up and take away the sand.

Use the map of Jameela and Saleem's village to paint a map of an oasis on your model.

DO

1. Why do the Bedouins come to the oasis?

2. Plan three meals for Saleem and Jameela's family, using desert foods.

3. What foods do Canadians prefer in hot weather?

4. What buildings in your community are like mosques?

Looking down on an oasis community.





How are tents suited to the Bedouin way of life? Why do all the tents face the same way? How are they made? What is the dark strip on the left?

The Bedouins Arrive

FACTORS ▼▼

Khalid is a Bedouin boy. He speaks the same language as Saleem and Jameela, Arabic. He has the same religion as they: he too is a Moslem. What makes his life very different from that of the oasis children is that his home is never in one place for a very long time. Bedouins are *nomads*. This means that they move from place to place to find pasture for their animals or to search for food. On the Al Hamad Plateau where Khalid lives there is not enough water for farming. But there is herding, and the Bedouins have become nomadic herders.

For ten months the entire tribe lives on

the Al Hamad Plateau. The people do not all stay together, though. They split up into small groups of around fifty, for it is easier to find pasture for the smaller number of animals.

In no two years do the nomads follow exactly the same route. Where they go depends on when it rains and how long it rains. They follow the showers.

Khalid's home is a tent. The cloth of his tent was woven from goats' hair. It was woven in strips about twenty-four inches wide and about twenty-five yards long. The strips were sewn together and put across several poles. A tent is usually thirty feet long and twelve wide. Some

are much larger. Khalid's father would like to have a canvas tent. He is planning to look for one at the oasis village bazaar.

You would not find a Bedouin home cluttered with furniture. There are rugs, pillows, and cotton quilts, for it can get very cold on the plateau. There are brass bowls, a large deep brass tray, a brass coffee pot, cups, and large spoons. There is also a wooden or stone *mortar*, or hollow dish, for grinding grain.

Extra food is kept in sacks or leather bags. Everything must be ready to be put on the camels' backs at a moment's notice. Nomads must be prepared to move quickly.

The Bedouins depend on their animals for food. Camels' and goats' milk is their chief food. Of course, a rich man like Khalid's father carries with him other supplies as well — a camel's load of grain, and a supply of dates, rice, tea, salt, and coffee. Bedouins who have goods to trade fly a white flag from the top of their tent.

Sometimes Khalid's father entertains guests. When a desert policeman or another sheik (chief) comes, he has a sheep killed. Once when a group of British oilmen called on him, he had a young camel killed. With the meat there was date bread. For dessert they had fruit, and to finish the meal there was hot, sweet coffee. All food is eaten with the fingers. The thumb and first two fingers may be used, but it is bad manners to get food on the palm of the hand.

Not only a rich man but also poorer Bedouins look after their guests well. In times past, when there was still much



How does this Bedouin's clothing differ from men's clothing in our country?

fighting and raiding in the desert, there were strict rules on how to treat guests. A traveller might be an enemy, but he would be well cared for. Upon leaving he could not be attacked for three days—the time it would take to travel a distance of a hundred miles by camel. Even today there are some rules for visitors. One says, "No visitor shall be welcome after he has stayed three days." Food is too scarce for long visits.

DO

1. Sketch Khalid's home in your notebook. Sketch Saleem and Jameela's home next to it.

2. List the furniture you have in your home that Khalid's family would not want to carry from place to place.

3. In what way are Khalid's people like Eskimo hunters?



Why is this Bedouin wearing so much clothing in the hot desert?

The Trip to the Oasis

FACTORS

In the heat of summer, pastures and water holes dry up fast. When this happens it is time to break camp. Khalid's small group will spend the next two months at an oasis. There they will be joined by many others of their tribe. There will be hundreds of tents, not only at Saleem and Jameela's oasis, but at other oases north and south of Damascus. Khalid's is one of the largest and most important tribes in the area.

It does not take long to put the camel-hide or goatskin bags on the backs of the animals. The bags are heavy with household goods and with rugs to be traded at the oasis. The camels snarl and balk. They are being disagreeable, as usual.

Khalid's father and the rest of the men and older boys ride in front. They are on the best camels. They lead the riding horses. Next come the pack camels with the tents, carpets, and belongings. Then

come the animals on which the women and children ride. Finally the herd of camels, sheep, and goats follow.

Not too many years ago such a caravan was quite likely to be attacked by a raiding party. When this happened the chief and fighting men would change from camels to horses. They would fight the enemy until the caravan could seek safety.

Just before reaching the village, the caravan comes to the pipeline. Not long ago Saleem and Jameela had stood there and wondered when "the people of the tent" would come.

Now Khalid's people have arrived. They see that many tents have been pitched already. Other Bedouins have arrived before them. Many more will be coming within the next few days.

From the roof of her house we watch with Jameela as the tent city grows. Most of the tents are made of black goats' hair, but here and there Jameela sees a bright modern canvas tent.

DO

Compare Khalid's family to a Canadian family on a camping trip. Copy the following chart in your notebook and complete it with answers to questions A to D:

TRAVELLING FAMILIES

A CANADIAN FAMILY	KHALID'S FAMILY
A. ?	?

- What articles are taken on the trip?
- How are the household goods carried?
- Where does the family ride?
- Where does the family sleep?



Bedouins

FACTORS

Several pictures have shown you the Bedouins' clothing. Boys, girls, men and women wear much the same kind of clothes, for these are best suited to the desert way of life. They protect the desert dweller from blistering sun, blinding sand, and temperature changes from hot to cold. Girls are generally better dressed than boys. Bedouins are poor, and boys are often clad in any sort of discarded clothing. Girls cover their heads with shawls, and also their faces, so that only the eyes show.

In the morning Khalid puts on a long white undershirt called a *galabia* and a long coat with wide sleeves. Over these he wears a kind of hooded cape of fine wool or silk. This cape is called a *burnoose*. He puts on a close-fitting cap. Over this he drapes a square of cotton or silk, folded into a triangle, so that the corners hang down at the back and sides. The cloth is held in place by a thick cord of leather, silk, or wool. This headcover can be raised to shut out the glare of the sun and to pro-



Some Moslem women still cover their faces with veils.

Left: A girl holds her pet lamb.

tect his nose, mouth, and eyes from blowing sand. The clothing is loose so that, in the heat, air can get at the body and cool it; but when it is chilly the several thicknesses keep Khalid warm. A belt or sash worn around the waist to hold the loose clothing in place can also be used as a pocket.

Years ago most Moslem women wore veils over their faces and never went out. Now many Moslem women, living in cities like Damascus, dress much the same as Canadian women. They work in offices, stores, and factories. Some women still wear a cape that might remind you of a tent.

DO

1. How do Khalid's clothes protect him from the heat?
2. What clothes do Canadians wear to protect them from the cold?
3. Where would the material for Khalid's clothing come from?



The Bedouins visit the village bazaar to get rice, grain, spices, and dates. What do they bring to sell there?

At the Bazaar

FACTORS
▼

The Bedouins go to the bazaar every day. Every day they bring some of their camels' wool, goats' and camels' hair, and beautiful woven rugs. These they trade for grain, dates, clothing, guns, and am-

munition, as well as for tea, sugar, and coffee.

Khalid and his father come here almost every day. At first Khalid is shy and hides behind his father, but soon he again becomes quite used to the bazaar. He likes the smell of freshly baked bread, freshly ground coffee, and the taste of sweet, sticky pastries. At first the loud voices frighten him, but soon he gets over his fear, for the voices are only those of merchants shouting the praises of their merchandise. They argue noisily with their customers about prices. There is always a great deal of bargaining at a bazaar.

Khalid likes the smells, tastes, and sounds of the bazaar, but best of all he likes the sights. There are so many things for sale: olives, onions, green peppers, golden dates, brass bowls, cups and mortars, beautiful clothing, quilts, and rugs. There are many people at an oasis bazaar, all wearing the galabia.

A bazaar offers many kinds of foods.



Saleem and Khalid

The Bedouins stayed in the village for two months. Khalid met Saleem and paid a visit to Saleem's family. He enjoyed himself on the roof of their house. Mother served a meal of lamb stew to their guest.

On another day Khalid took Saleem to the tent city to meet his father and to see the camels.

DO

1. Make a list of goods you could buy at the bazaar.
 2. How is the bazaar like a fair in Canada?
 3. Why would bargaining be impractical in a large department store?
-

The Ships of the Desert

FACTORS

Saleem remembered that when the camels arrived their humps had been quite small. Now the humps had become big again.

A camel's hump is made up of fatty



Camels drink for a long time after going for many days without water.

tissue. If a camel goes without food for a long time the hump almost disappears. Camels are able to go for a long time without drinking water because they can drink a great deal at one time and do not sweat.

There is a saying that goes: "Where cattle cannot live, sheep can; where sheep

Herdsmen and their animals rest near a waterhole dug in the desert sand.



cannot live, goats can; where goats cannot live, nothing can." The desert nomads have added, "Where goats cannot live, camels can."

The camel is very precious to the Bedouin as his only real means of transportation. While a donkey can be used for short desert trips, a camel will serve for both short and long trips. The camel is just as precious to the nomadic Bedouins as the date palm is to the oasis people. The poorest man has a few camels. Khalid's father owns two hundred, for he is a sheik and one of the chiefs of the entire tribe.

Great loads are still transported on the backs of camels. Though the camel walks slowly, usually less than three miles an hour, it can carry up to 400 pounds, and thus has well deserved the name, "ship of the desert." In another way, too, the camel can make you think of a ship — a ship in a choppy sea. A camel walks by lifting both feet on one side at the same time, tilting its body from one side to the other with every step. You are quite likely to get sea-sick on the "ship of the desert."

Besides carrying heavy loads, camels are useful in other ways to the desert people. Rich camels' milk is one of the Bedouins' chief foods. The meat of the young animals is delicious — it tastes like veal. Pillows are stuffed with camels' hair, and tents woven of it. Water is pulled up from the wells (sometimes by camels) in camel-hide or goatskin buckets and put into a camel-hide trough. Without the camel the Bedouins could not live in the desert.

DO

1. Camels are suited to the desert. List as many details as you can to prove this.
 2. What other animals besides camels have been tamed to work for man?
 3. Veal is mentioned in the story. From what animal do we get veal?
-

New Ways in an Old Land

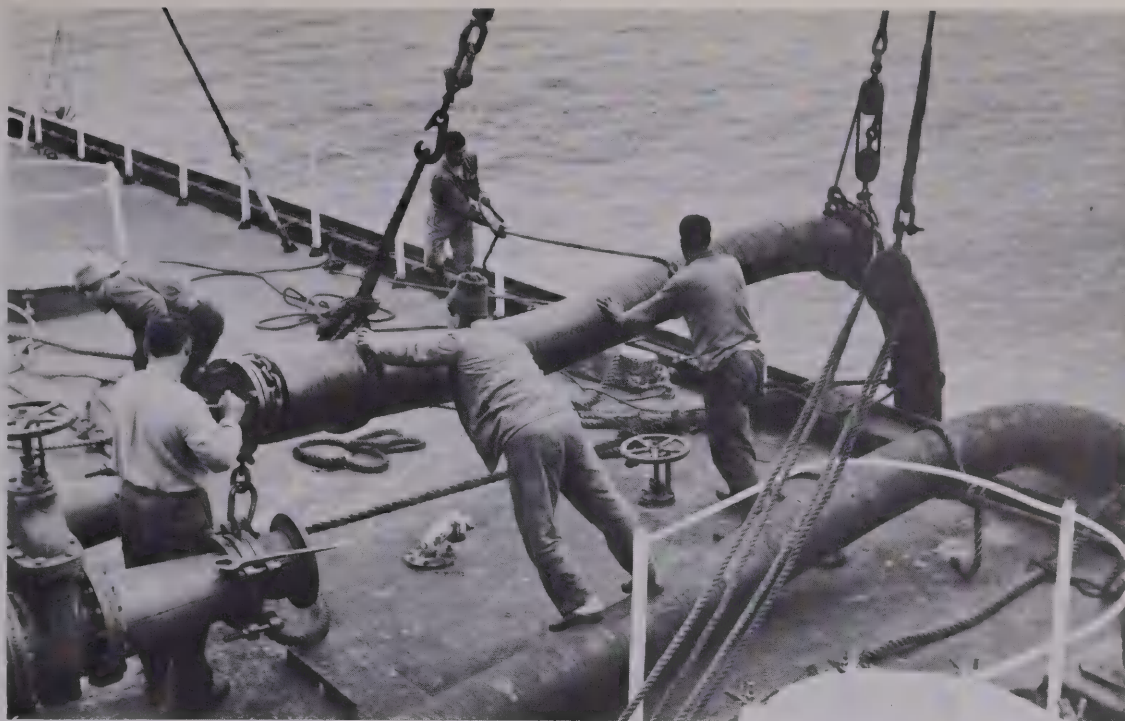
FACTORS
▼▼

Khalid is sure to see some of the exciting new things that have come to his country — such things as trucks, trains, and power pumps. The reason they have finally come to the desert is that oil has been found there. Oil is very valuable. A modern country needs oil as much as the oasis dweller needs the palm tree and the Bedouins his camels. All the countries of the world use and want oil. From it we get gasoline for cars, trucks, and tractors; jet fuel for planes; and diesel oil for locomotives.

It has been found that many desert countries are rich in oil. This discovery is rapidly changing the lives of the Bedouins as well as of the oasis people. Not too many years from now there may be modern cities in the desert with factories, stores, schools, and hospitals.

Some day Saleem and Khalid's neighbourhood may be very like your own. But this is still in the future, and when Khalid sees as many as three trucks all at the same time he is quite excited.

You too might be interested in desert trucks, for they are not quite like the trucks



Oil from the pipelines is pumped into oil tankers at the coast.

you are used to. They have two-way radio sets, and carry extra water and gasoline. They have over-sized tires. Often steel ladders are carried to put under the tires in case they get stuck in the sand. Above all, the drivers try to avoid breakdowns. They know that they could not survive very long in the desert heat.

Many desert buses and trains are air-conditioned to make travelling in the heat more comfortable.

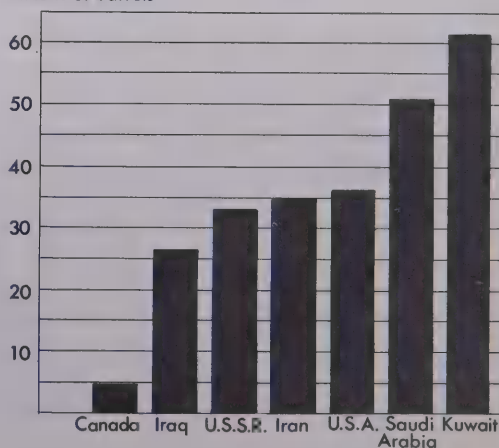
Desert travellers are often surprised to see what looks like a large lake in front of them on the desert where there is no lake. This sight is called a *mirage*. It is caused by the hot air rising off the desert in waves (like the waves we sometimes see over a heated road) reflecting the blue sky in a way that suggests water.

DO

1. Oil has many uses. List as many as you can discover.
2. How must trucks and buses be changed so that they may be used on the desert?
3. From the graph below tell which country produces the most oil.
4. Which bar shows the oil that is in your country?

Figure 4. Oil reserves in six countries.

Billions of barrels



Gifts from the Desert

One morning as she stands on the roof of her house Jameela suddenly shouts, "The tent people have gone."

"The camels have gone, too," says Saleem very sadly, "and I did not even see the caravan go." He knows that somewhere on the plateau Khalid will soon be going with the herdsmen as they take the camels out to graze. Khalid will be singing the song that only his own camel will follow. Lost camels will have to be found. Sheep, goats and the famous Arab horses will have to be looked after. Saleem will not see Khalid for another year.

As we prepare for our return trip to Damascus we think of the desert's gifts to us.

When you take home a box of dates from the store, you are taking home with you the sunshine and the sweetness and the dryness of the oases of the world's deserts. Perhaps the smart shirt or dress which you received on your birthday was made of the silky, long-fibred cotton which

comes from a very large oasis, the Nile valley of Egypt.

Even more important than dates and cotton are other gifts of the desert and its people. Saleem's people long ago studied the stars to help them find their way in their wanderings from oasis to oasis over the great empty desert spaces. They became the first astronomers and navigators. They gave us our system of numbers, which are called Arabic numbers. To the Arabs we also owe our alphabet. These people wandering over the deserts with their flocks, and carrying goods for trade, became great story tellers. You may have heard the tale of "Ali Baba and the Forty Thieves," and other stories from the collection called *Arabian Nights*.

"The Lord is my shepherd, I shall not want . . ." sang David as he cared for his sheep twenty-five hundred years ago on the edge of the desert. His gift to us was the Twenty-third Psalm.

All these things and more we owe to the desert dwellers.

SUMMARY QUESTIONS — 4

1. Name two outstanding features of an oasis village.
2. What accounts for the kind and amount of farming that can be carried on at an oasis?
3. Why are Bedouins tent dwellers?
4. Why is the camel of great importance to the Bedouins?

THE MAP SHOP

Land and Water Forms

As we travel from country to country and use maps to study these countries, you will see many of the features shown below. Look at the diagram carefully. (Figure 5). If you do not understand a

term, find it in the Glossary on page 208, where its meaning is given.

Copy the numbers from 1 to 23 in your notebook. Find each number on the map (Figure 6) and write in your notebook, beside the number, the name of the feature.

Figure 5. Block model showing names of land and water forms

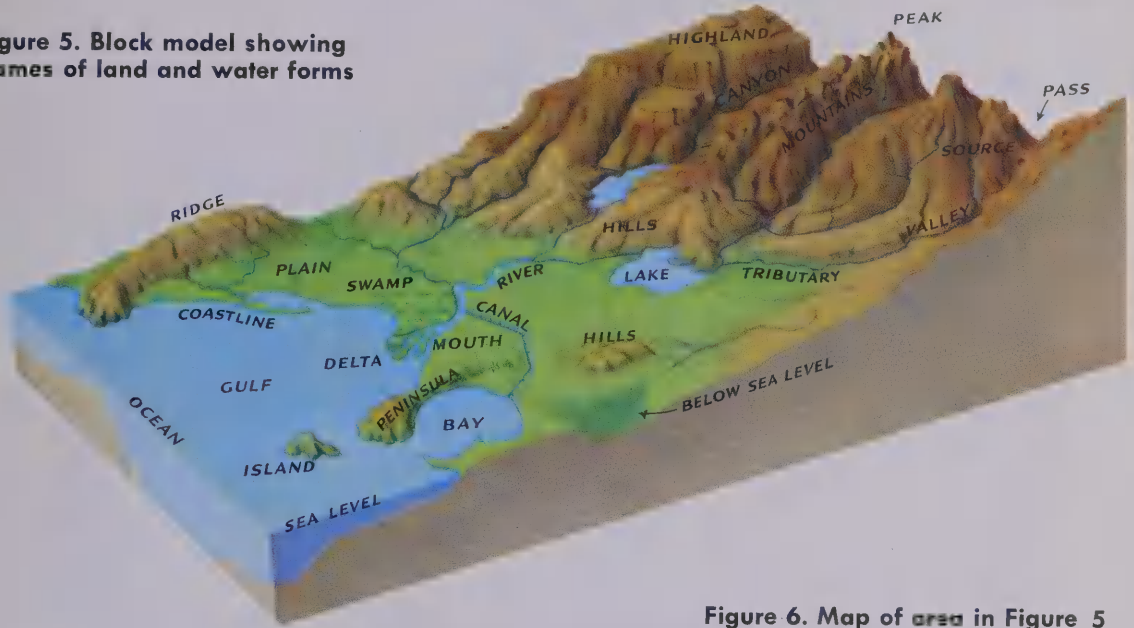
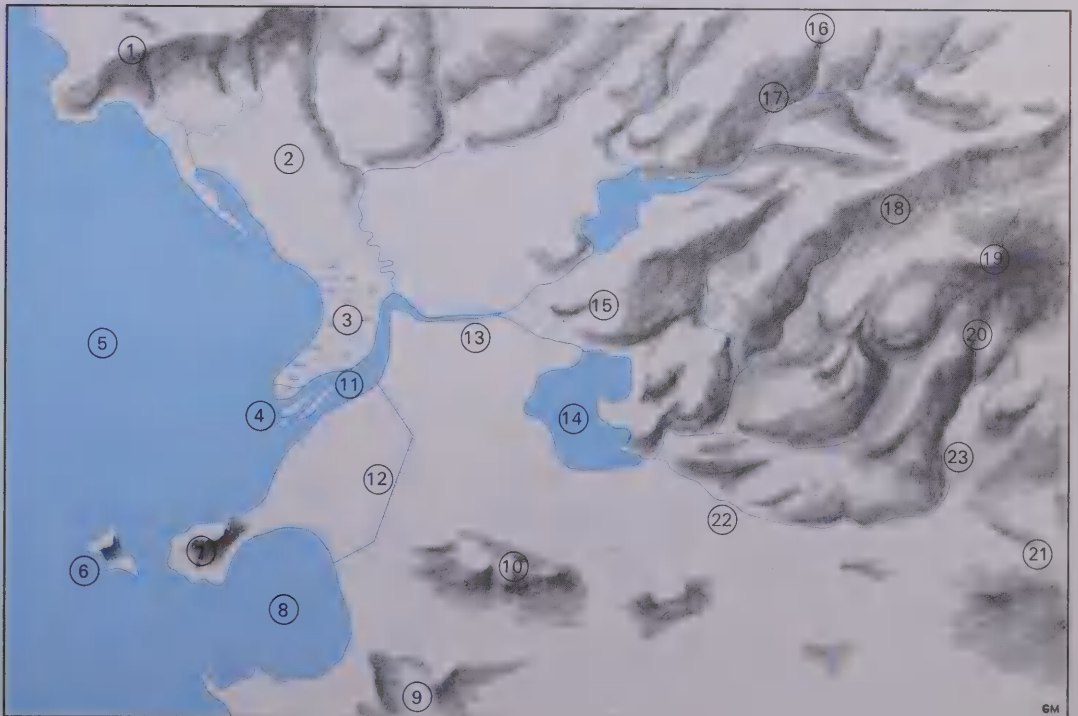


Figure 6. Map of area in Figure 5



5

Living on a High Plateau



A COMMUNITY IN THE ANDES

Emanuel and Carlotta live in the mountains of Peru. Let us look at the map of North and South America on this page.

Both continents are called America. We are all Americans: North Americans and South Americans. On the map we see the

Pacific Ocean to the west and the Atlantic Ocean to the east of both continents. Look closely and you will see long rows of mountains, called ranges, along the west side of both continents. In North America they are the Rockies, in South America the Andes.

A Land on the Equator

As our jet liner carries us south to visit Carlotta and Emanuel, we can see that the two continents are joined by a narrow strip of land. A strip of land that joins two larger pieces of land is called an *isthmus*. The Isthmus of Panama joins North and South America. As we travel farther south we see a line marked "Equator" on our map, but when we look out of the window of our plane we cannot see this line. Why? The *equator* is a line placed on maps by men. It is shown as circling the earth halfway between the North and South poles. The equator crosses the northern part of Peru. Countries near the equator are usually very hot

because they receive the most direct rays of the sun. Emanuel and Carlotta live near the equator but their climate is not hot. In fact it is unusually cold! Their climate is cold because the land they live on is high above sea level. When we are measuring land upwards, the sea or *sea level* is used as the bottom of our measure.

(When you get measured at home, Mother might say that you were four feet six inches above *floor level*.)

The diagram in Figure 1 shows a mountain on the equator with the crops that could be grown on it. Figure 2 shows a map of the world and the crops that may be grown between the equator and the North Pole.

DO

1. How is the top of the mountain like northern regions of the earth?
2. How is the bottom of the mountain like regions of the earth near the equator?
3. Write a sentence explaining how these two diagrams are alike.

Figure 1

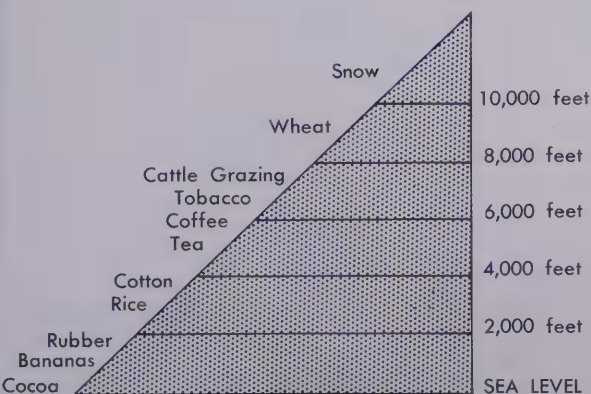


Figure 2



THE MAP SHOP

Map Colours

Many maps in your textbook and atlas are coloured to help you see the height of the land.

If we make a model of a mountain and cut it in layers, it would look like Figure 3 below.

We could colour each layer using the guide or *colour key* beside Figure 3.

Figures 4 and 5 show how our model would look from the side and from the top.

Not all maps have the same colour key. We must look at the colour key carefully before reading a map that shows height.

Using the map and colour key on page 91, answer these questions in your notebook:






1. Could you see mountains from the city of Belem?
2. In what direction do most of the rivers flow?
3. Which city is higher above sea level, Cuzco or Montevideo?
4. Are the steepest slopes of the Andes Mountains on the eastern or western side?
5. Which countries would have transportation troubles because of the mountains?

Figure 3



COLOUR KEY

The colours show the height of land.

	Over 800 feet
	600 to 800 feet
	400 to 600 feet
	200 to 400 feet
	Sea level to 200 feet

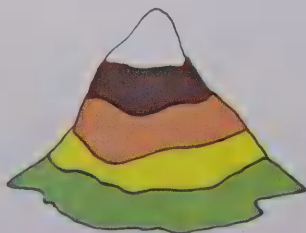


Figure 4



Figure 5

SOUTH AMERICA





How is Lima different from a large city in Canada?

As our plane lands in Lima, the capital city of Peru, we prepare for the journey by car to Emanuel and Carlotta's village.

DO

Copy the following chart into your notebook and complete it.

COMPARING HOMELANDS

	CANADIAN CHILDREN	CARLOTTA AND EMANUEL
Country	?	?
Capital City	?	?
Continent	?	?

A Close Look at Peru

LAND

Canada, being a very large country, is made up of mountains, plains, and broad rivers. Peru too has many landforms. People usually live and work at those things they can do best on the landforms on which they live.

As we travel from the city of Lima on the coast of Peru to Carlotta's village, we drive across a desert. This desert lying between the Pacific Ocean and the Andes Mountains is about eighty miles wide and fourteen hundred miles long. Crossing the desert towards the mountains we see many canals. These canals carry water

from mountain streams to this dry desert so that crops may be grown.

As we travel into the foothills of the Andes, the road starts to wind upwards. Many of the mountain peaks of the Andes rise 20,000 feet above sea level. Can you imagine looking up four miles into the sky? The Andes stretch across Peru from north to south. There are really two rows of mountains, called ranges, side by side. Between these mountains are many valleys. It is in these valleys that most of the people of Peru live. Our destination is a village in a broad valley called the Altiplano. This is where Emanuel and Carlotta live. *Altiplano* means "high plain." It is called a "plain" because the land is level, and "high" because most of the plains are from 12,000 feet to 14,000 feet above sea level. The Altiplano is really a plateau.

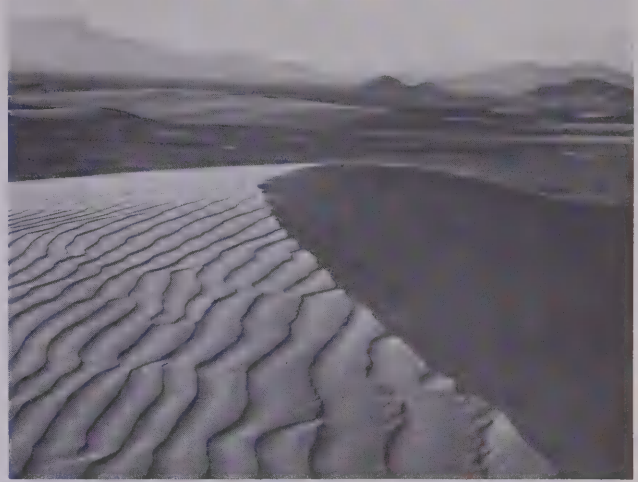
On the map you will find the Amazon River in northeastern Peru. This part of Peru is covered with tropical forests like those we saw when we visited the Congo.

Our car twists and turns as we travel up the mountain roads. We have already seen some of the landforms of Peru. Its varying landscapes — desert, Altiplano, and tropical forest — are caused by differences in height.

DO

Using the Picture Study Guide (page 21), describe the land in each of the pictures in this section.

The Amazon River. In what other country that you have studied are there thick tropical rainforests like that shown here?



In what other country that you have studied did you see land like the land shown here?



A mountain village. How can you tell that crops are grown on the mountain sides?



Why does this highway have so many bends?

Getting Up to the Altiplano

FACTORS

Reaching the Altiplano has always been a very difficult task. The early Spanish explorers climbed the Andes mountains on foot. For years after the city of Lima was built on the coast, people would look at the Andes and wonder if a railroad could be built up the steep slopes. We can imagine the trouble the men who build railroads had when they did start to work. Our own car has been twisting, turning, and climbing as we continue our trip on the one highway across the Andes from Lima. We are going to the village where Emanuel and Carlotta live.

94

The mountain railway in Peru. What do the snow and lack of vegetation tell you about the altitude?



The railroad builders bridged deep canyons, blasted through thick mountain walls, and laid track along narrow ledges. When they were finished they had built the highest railroad in the world. Its track passed through sixty tunnels and over more than sixty bridges!

As our car climbs higher we see mountain peaks covered with ice and snow. These snow caps never melt because the tops of the mountains are so high above sea level.

Climbing higher and higher we begin taking deep breaths. We seem short of air and even feel a little dizzy. We do not have to worry that something is wrong with us, for this happens to almost everyone. In Peru they call this *soroche*, or altitude sickness.

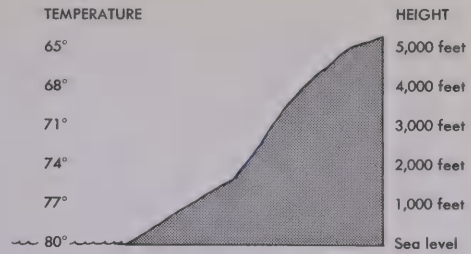


Figure 6

DO

Figure 6 shows that the temperature drops 3 degrees every time you climb an additional thousand feet up a mountain.

1. If the temperature at sea level is 60 degrees, what is the temperature at 5,000 feet? 10,000 feet? 14,000 feet?

2. List the problems there would be in building a railroad across the Andes.

3. How would the altitude affect your work and play when you first arrived on the Altiplano?

A passenger receiving oxygen. Why is this sometimes necessary for travellers crossing the mountains of Peru?





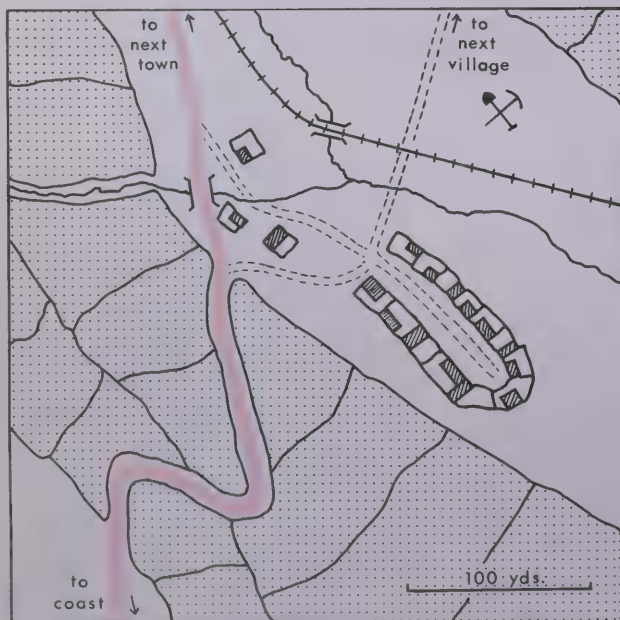
Landscape near Emanuel and Carlotta's home

We Arrive

FACTORS

At last our car reaches the Altiplano, and we make our way to Emanuel's village.

Figure 7. Map of Emanuel's community



DO

1. In your notebook make a key to the map showing the following: River, Railway, Highway, Road, Bridge, Buildings, Mine, Fields.

2. Which is the highest place on the map of Emanuel's community — the fields or the village homes?

3. How could height be shown on this map?

4. In which direction would you expect the river to flow?

Emanuel's home is not large. It is built of stone, and of bricks made of mud and dried in the sun. The walls are two feet thick. There is only one small window and one door. Outside is a small walled courtyard. The roof of the house is thatched with coarse grass. Inside the home the walls are bare except for a shelf and some

wooden pegs on which clothes are hung. There are low benches of sundried mud along the walls. These are the beds. With wool sheep-skins spread over them they look cozy and warm. At the end of the room is the open fire. It is laid on stones on the earth floor. The smoke from the fire that mother has started is passing up and out through the thatched roof. Mother is stirring a huge bowl of porridge.

“It’s ready,” calls Mother. “Will you bring the bowls for our visitors, Carlotta?”

Carlotta holds out bowls to be filled and then passes them to us and to her father and brother. When everyone is served, we sit down along the wall beds to eat. Mother feeds the baby, Poco.

The bowls we are using were made by Carlotta’s mother. They are pottery. The wooden spoons were made by Father. The cereal this morning is *quinoa*. Quinoa is a plant that grows on the Altiplano. Its seed is used for cereal. How very good it tastes on a frosty morning!

DO

1. Copy the following chart into your notebook and complete it.

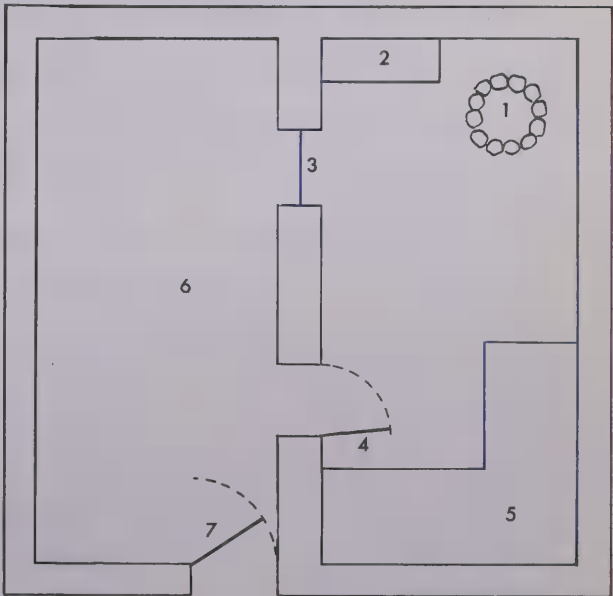
EMANUEL'S HOME	
Roof	?
Walls	?
Heating	?
Furniture	?

2. Copy the floor plan of Emanuel’s home (Figure 8) into your notebook. Make a key for the numbers on the map.



A home much like Emanuel’s. Why are the vegetables spread out in the courtyard?

Figure 8. Plan of Emanuel’s house





What kinds of agricultural activity can you see in this picture?

Work on the Altiplano

FACTORS

Like most days, this is a busy one for all the family. Today we are to go with Emanuel.

Emanuel's job is minding the sheep. It will be dark before we return and ten hours will have passed.

"Mother, please may I go with Emanuel?" asks Carlotta.

"Not today, Carlotta. I'll need you to help me, and your father will be at the mine all day."

Outside, Emanuel pulls down the sides of the woollen cap which he wears under his felt hat. The air is very frosty. The sheep in the corral hear him coming toward the gate and begin to bleat. They know it is time to start for their pasture up the mountain. The corral is an open pen with a stone fence around it. During the night the sheep, llamas, and alpacas sleep in the corral.

Llamas (ya'mas) and alpacas are common on the Altiplano. They have long necks like camels but are much smaller animals. The alpaca looks like the llama but has shorter ears. Its wool is also softer and thicker. Very expensive rugs are made from the alpaca's wool. The llama is used as a pack animal. It is very strong and can walk long distances with packs on its back. Llamas can climb up and down steep mountain slopes without slipping because they have sharp hoofs.

"Come on, Chico," Emanuel says to his pet llama, letting him out of the corral after the sheep. Father will be needing the other llamas today to carry ore from the mine.

Side by side with Chico and Emanuel, we follow the sheep along the road leading up the mountain. We notice the crops in the little fields as we pass. Potatoes are planted behind the houses. Farther up

the mountain are fields of quinoa, and beyond these more fields. The fields are built like large steps on the side of the broad mountain slope, and irrigated with water from mountain streams. Together, they make a crazy-quilt pattern.

Although he is used to thin air, Emanuel is breathing a little faster now. We have been climbing for over a mile. Finally there are no more cultivated fields, and the sheep begin spreading out in search of grass. Much of the grass is short, but there are also bunches of tall grass called *ichu*. Ichu is eaten by the animals and is also used as thatch for the roofs of houses. Although there is plenty of grass up here, trees are very scarce. They grow only beside the streams.

The sun is well up in the sky now, and we enjoy its warmth. Emanuel begins wandering about picking up dried grass and twigs, and we help him. We place all we can gather into a pile. Later Emanuel will put the twigs and grass into the sack on Chico's back to be carried back to the house for firewood.

Before the morning is over a few clouds form and a cold, strong, wind begins to blow across the face of the mountain. Emanuel, who is used to this, pulls his poncho tighter and tells us to move behind some rocks for protection. From here we can see the flock as well as the whole valley below us. We can see the road that runs past his house. We can see the railway. How small the houses look, spotted against the side of the mountain! Every day Emanuel watches trains pulling ore



A flock of llamas. How would you describe a llama to a person who has never seen one?

from the mines. Sometimes he can see passenger trains and knows that the people on these trains are travelling up from the seaport at Lima.

From our shelter Emanuel watches the flock. Soon the clouds move away and the warm sun appears. Emanuel uses the peaks of the mountains in the west for his clock. When the sun reaches these peaks it will be time to start for home.

After a while we stroll down to check the flock. On the way Emanuel tells us what mother, father, and Carlotta are probably doing.

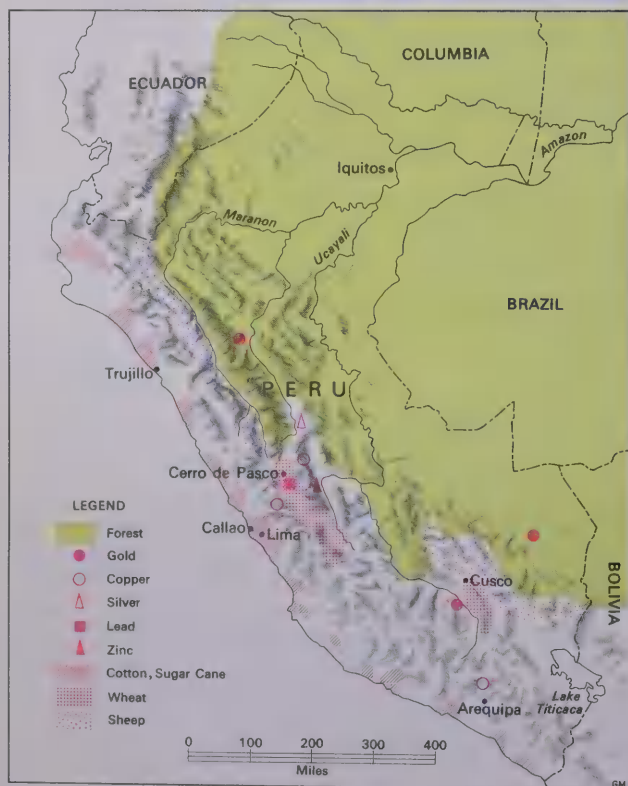
DO

1. What are llamas and alpacas used for?
 2. What were Emanuel's jobs?
 3. Sketch a llama in your notebook. List all the facts you know about a llama underneath your sketch.
-



A Peruvian mine. Why is the railroad important to the mining industry in Peru? Find the dwellings of some of the workers.

Products of Peru



Father Goes to the Mine

FACTORS
▼

Twice a week Father works at the mine. He uses his llamas for carrying ore from the mine to the railway track. He straps the empty bags onto the llamas' backs.

Like many of his neighbours, Father works part-time at the mine. In this way he can earn much-needed extra money. There are many mines in the mountains and plains of Peru. Today, mining for copper has become most important. Many Canadian mining engineers go to Peru to help in the mines or look for new mines. Some of the mines are fifteen thousand feet above sea level. It is often a very difficult job to get the ore from the mine to the railway. It is also difficult for men who have not been used to the altitude to work in the mines. For this reason the Indians who are used to living on the Altiplano are best suited to mining work.

DO

1. Copy these four column headings into your notebook: *Agriculture, Mining, Manufacturing, Services*. Place each word from the following list in a column under the correct heading.

cotton	sheep	cattle
sugar	forests	fish
potatoes	wheat	doctors
leather	tires	glassware
olives	cocoa	coffee
corn	grapes	teachers
silverware	tin	copper

2. Which of the above are important products of Peru?

3. Which of the list in (1) are products of the mountainous areas of Peru?

Washing the Wool

FACTORS

It seemed that working with the wool took up most of everyone's time. Carlotta had been carrying wool to the stream to wash it every day since the sheep had been sheared a week ago. She had enjoyed watching her father and Emanuel shearing the wool from the sheep, but worried because she thought the sheep would be cold afterwards.

Washing the wool was not such a bad job, but picking the burrs out of it first was very tiring. Carlotta took baby Poco with her when she went to the stream. Although Poco could not understand what Carlotta was saying, she began telling him all the things that had to be done with the wool.

"We have to wash it first and let it dry," she began. "Then Father will whip it. He will put the wool down on a mat and then hit it with a thin rod to knock out all the dirt and make the wool fluffy. Then we must comb the wool."

Mother Works with the Wool

Back at the house mother works alone with the wool. She makes yarn and clothes for the whole family. Once the wool has been cleaned and combed, spinning starts. Everyone in the family knows how to spin, but Mother does most of it. To spin, a little wooden stick called a spindle is used. When turned, it pulls and twists the thin wavy hairs of wool into yarn. Father carries a spindle with him and spins wool on his way to and from the mine. Emanuel takes one with him when he minds the



Spinning is done in any spare moment. How does the spindle help prepare the wool for weaving?

sheep. Carlotta carries one with her most of the time, and Mother is rarely without hers. Spinning takes a long time, but with everyone working the wool is all gradually changed into balls of yarn.

Today Mother has an extra large fire going. She is trying to get the big kettle of water to boil. She will need this for dyeing (colouring) the yarn. Beside the fire stands another kettle, this one full of cold water. When the water on the fire boils, Mother will empty into it a can of dye of the colour she wishes. She will dip the wool in the dye water, then lift it out and place it in the pot of cold water. The cold water helps make the colour stay in the wool.

While waiting for the water to boil, Mother goes outside to her loom and begins weaving a blanket she hopes to have finished for market on Saturday.



A simple home-made loom

Mother weaves blankets, ponchos, skirts, and just about everything else that is needed to keep the family warm. She even weaves the sacks that are used on the

Llamas on the village street. Their saddle bags are woven at home.



llamas' backs. To make a blanket she strings the loom with threads of yarn all running in the same direction. Then she weaves in threads running the other way. By using one colour and then another she can make stripes in the cloth.

Most of the wool mother uses for weaving comes from the sheep and llamas. The alpaca wool is saved and sold. Alpaca is the best wool and brings a high price at the market.

With some money they have saved and the money they will get at the market, Mother hopes to buy a real stove.

DO

1. What animals supply Peruvians with wool?

2. Copy and complete this outline in your notebook:

Working with the Wool

1. The wool is sheared from the....?.....
2. The ...?... is washed in the...?....
3. The?.... is dried in the?.....
4. Father?.... with a stick.
5. The wool is combed.
6. Everyone helps?.... different wool into yarn on a spindle.
7. The yarn is?.... different colours.
8. A loom is used to?.....

FACTORS

Darkness Comes Fast in the Mountains

Soon it was time for us to start down the mountain with Emanuel. He told us that we would be having *chuno* for supper that night. Chuno is the Indian name for

HOURS OF DAYLIGHT AT LIMA, PERU, ON FIRST OF EACH MONTH

JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
12 hr., 42 min.	12 hr., 33 min.	12 hr., 17 min.	12 hr.	11 hr., 46 min.	11 hr., 35 min.	11 hr., 33 min.	11 hr., 31 min.	11 hr., 55 min.	12 hr., 11 min.	12 hr., 27 min.	12 hr., 46 min.

dried potatoes. Chuno is cooked by being boiled in water. All the family like meat cooked with chuno, but they do not have meat very often. Their animals are too useful in other ways to be killed and used for meat. Sometimes Mother puts a few vegetables into boiling water to make soup. Emanuel and Carlotta are very fond of this.

When we are a short way from the house Emanuel and his flock begin running down the slope towards home. There is a race between Emanuel and Father to see who can reach home first. Father is closer but he has to come uphill. Emanuel reaches the corral first. Rushing toward his father, Emanuel shouts, "I beat you, I beat you!"

Smiling, they take us inside. It has been getting dark quickly and the night air is very cold. Together we sit around the fire, quietly eating our supper. When we have finished it is quite dark.

DO

1. In which month are the days shortest in Peru?
2. In which month are the days longest in Peru? in your community?
3. What foods are eaten by Emanuel's family for supper?

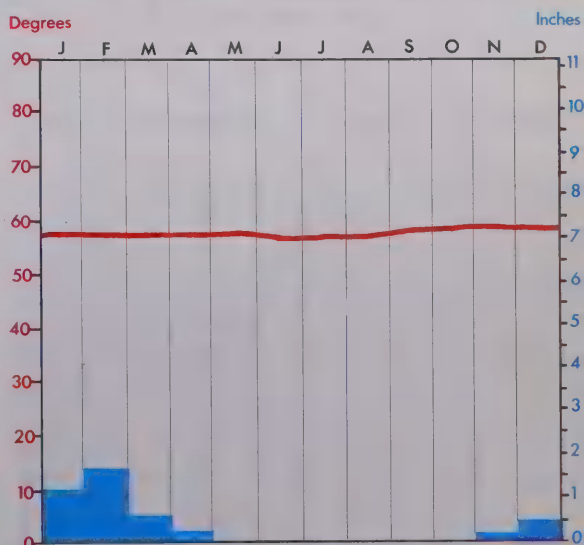
Weather on the Altiplano

Although the Altiplano is near the equator, the weather there is cold because of the great height. Because of the constant cold, the small amount of heat from the sun each day, and the small amount of rainfall, only a few crops survive. Quinoa and potatoes are among the few crops sturdy enough to grow in this climate.

DO

1. Which are the summer months in Peru? In your community?
2. Which are the winter months in Peru? In your community?
3. In what months does the most rain fall in Emanuel's village (see chart below)? In your community?

Figure 9. Monthly temperature and rainfall at Arequipa, Peru (Altitude: 8041 ft.)





Why would Carlotta have difficulty using this plow?



Hand plowing. Many Indians use this method if they have no plow or animal to pull a plow.

Harvesting potatoes is back-breaking work.



Work in the Fields

FACTORS
▼▼▼

It was Friday morning. Emanuel was already high up on the mountain pasture with the flock. Father's llamas had gone with him. Father was out in the field cutting quinoa. This time we were to spend the day with Carlotta.

Behind the house Carlotta, with Poco on her back, seemed to be playing a game among the piles of potatoes. She was walking on top of them and watching them squash under her bare feet. This was really more than a game, because it was something that had to be done. Carlotta was making chuno. When the potatoes are dug up they are piled in small rows. At night they freeze, but during the day they begin to thaw out. It is while they are thawing the tramping squeezes the juice out. A little tramping is done every day for about two weeks. By this time the potatoes, or chuno, are so dry they will keep for years without spoiling.

The Indians of the Altiplano were the first known people to grow potatoes. Although our potatoes are larger, it was on this high plateau that potatoes had their beginning.

"Do you want to help me tramp potatoes?" Carlotta called to us as she lowered Poco from her back.

Carlotta told us of the fun she had had helping her father with the potatoes. Helping him plow the field had been the most fun. Their homemade plow was a strong piece of wood with an iron point on the end. The oxen used for pulling it were shared with a neighbour. Father had let

Carlotta try to plow. She had gone only a few steps hanging onto the stick when it struck something hard. The stick gave such a twist it threw her sideways onto her back on the plowed field. The oxen, as though knowing what had happened, stopped. Carlotta was not hurt but did not understand why her father laughed while the oxen just stood staring at her. Father had later explained that you have to be a strong man to hang onto the plow when it strikes a stone buried in the ground.

Carlotta had now tramped out just about all the juice she could. She heard her father's voice calling her. He was cutting quinoa in one of the little fields. Mother was with him. Carlotta knew she must go and help pile up the quinoa stalks.

Quinoa plants grow from two to four feet high and each stalk carries an ear of small white seeds. The seeds were now ripe and would have to be harvested.

Carlotta watched her father cutting down the stalks with a sharp-bladed tool called a sickle. How fast he moved along, leaving a path of fallen stalks behind him! Carlotta knew she must start gathering right away or she and Mother would never keep up with Father.

When enough cutting and gathering had been done for the day, everyone gathered up an armful of dried quinoa from the previous day's cutting and carried it home. Mother and Carlotta spent the rest of the afternoon carrying dried quinoa from the fields and piling it outside their house. Father busied himself threshing the quinoa.



Cutting grain is another tiring job. What machinery do Canadians use for this task?



Threshing grain. What does beating the stalks do to this grain?

Why is this grain being thrown into the air?



To thresh the quinoa, he spread the stalks out on a dry piece of ground and began pounding the stalks with a big heavy stick. This beating of the stalks knocked the seeds off.

The seeds could then be gathered up and put into a sack, ready to be made into the quinoa porridge that tasted so good to Emanuel and Carlotta on a cold morning.

It was again beginning to get dark when Emanuel returned and the whole family went into the house for supper. Most of the talk at supper and afterwards was about tomorrow. Tomorrow would be the market day. This was the best day of the week for Carlotta and Emanuel.

DO

1. List the things that happen to quinoa after it is cut and before it can be used for food.

2. How is the way Emanuel's father plows different from plowing in Canada?

3. What is done to the potatoes to make chuno?

Market Day

FACTORS

"So, I'm up before you this time!" shouted Carlotta to Emanuel who was still sound asleep.

With a bound Emanuel was on the floor. He remembered this was market day. It would be two hours before the sun would be up but there was much to be done. Quickly he pulled on his clothes and went out into the frosty air. All the animals

had to be fed in the corral because today he would not be taking them to pasture. He had to carry enough quinoa stalks to the corral for all the animals. He was still at it when father came out carrying pack sacks for the llamas.

"We shall take three llamas with us today," announced father, handing one of the sacks to Emanuel.

"May Chico come?" pleaded Emanuel, who liked to show off his llama in the market square.

"All right," replied father, "but he'll have to work like the others and not just take you for rides."

"Yes, Father," answered Emanuel, already beginning to tie red woollen tassels on Chico's ears to make him look handsome.

"Bring the blankets and alpaca wool your mother has ready for market," said Father. "We must hurry."

When the blankets and wool were fastened onto the llamas, Father and Emanuel came in for breakfast.

How beautiful Carlotta and Mother looked, thought Emanuel. Mother had on her usual three skirts, but on the outside today she wore her best one. Her new shawl was bright red. Carlotta had on her best skirt, too. Around her shoulders she had a soft pale blue shawl. Emanuel thought that by next market day Carlotta would likely have her new skirt in the colour of blue she liked so much. Both Carlotta and mother wore their gold earrings, and hats that looked like the men's.

The little town was several miles away,

Even on the way to market these women are working. Do you think they have an easy life?



and they wanted to be at the market shortly after sunrise. It was still dark when breakfast was finished. Mother fastened baby Poco onto her back, and we were ready to leave. We were all very quiet as we made our way down the little road with the three llamas leading the way. Today would be our last day with the family. From the market town we would pick up our car and continue on to Lima.

We had travelled for about half an hour when Carlotta called, "I hear voices ahead. Let's hurry and catch up."

Soon we joined some neighbour friends who were also on their way to market. Before reaching the town we joined three more families.

"Isn't it a lot of fun," said Carlotta, "to meet everyone in the dark?" It was not until we reached the town that the first light from the sun appeared.

DO

1. List the things the family did to get ready for the trip to the market.
2. What goods were taken to the market to be sold?

At the Market

FACTORS
▼

People were already beginning to gather in the market square as father chose a place to take up his "stand" for the day. He unloaded his blankets and Emanuel took the llamas to the far end of the market square where they could be left.

The market square is in the centre of the town. It is a large open space with streets leading into it from all directions. People from the country and the town meet in the square. Everyone brings something to sell or to trade, for this is the way each tries to get what he needs. Some bring vegetables such as peas and beans.



Weighing coca leaves in the market. The Indians like to chew these leaves. How are they weighed?

These are brought by people who live farther down the mountain where the climate is warmer. Perhaps the family that sells vegetables needs a llama to help carry their goods. They will be able to buy a llama in the animal part of the market. Then there are people like Carlotta's family who have blankets and alpaca wool to sell. These may be bought by merchants in the town who can sell the blankets in other countries. The blankets may also be bought by other people in the square who do not have sheep or llamas but who need warm blankets at night.

In the stores around the square and throughout the town there are goods from other countries. Trains have brought these goods up the mountain from the sea port. Some stores have metal pots and pans; others have farm tools.

It did not take long for mother and father to set up their stand at the market square. Mother folded her blankets and

piled them neatly one on top of another. Some she spread out so that people could see the pattern in the weaving. How beautiful the colours looked in the bright sun! Baby Poco lay on one of the folded blankets and made gurgling sounds at people who stopped to look down at him. Certainly he was not for trade or sale!

Carlotta helped Mother and Father display the blankets to the buyers.

"That is too much money," one man exclaimed to Mother after she had told him the price.

"But they are the best blankets in all the mountains," replied Carlotta. She really meant it.

Whether it was because Carlotta was a good saleswoman or because the blankets were the best in all the mountains, all of them were sold within two hours.

"Well done!" said Father, putting his arm proudly around Carlotta's shoulder. "Now we can look for the things we need."

"I need something to eat," baby Poco seemed to say as he kicked and shouted impatiently.

"Good for you, Poco," smiled mother. "We will all get something to eat. We've been so busy we forgot about dinner."

DO

1. What goods are bought and sold at the market?
 2. List reasons for having the market in the middle of town.
 3. Sketch a plan of what you think the town looked like.
-

Market Buying

FACTORS

Mother led the way to one part of the market square where hot dinners were being served. To Emanuel and Carlotta, this was a wonderful part of market day. For dinner they would have a bowl of vegetable soup and then a bowl of meat stew. This was indeed a real treat, for at home they rarely had meat, or vegetables other than chuno.

Why would Emanuel and Carlotta not have meat and vegetables at home?

When the last piece of stew had disappeared from Poco's bowl, Mother handed back the empty bowls and the family started on their shopping trip. The market square was so crowded they sometimes had to follow one another to get through. How noisy it was, with people arguing about prices as they traded their goods! Finally, as they left the square, the crowd became thinner and they were able to see inside the shop windows.

"There's a plow I could certainly use," remarked Father, looking at a metal plow with bright red wooden handles.

"Where did it come from?" asked Emanuel.

"The train has brought it up from the ocean port," answered Father. "It has probably come from Canada, the United States, or Europe. A Canadian engineer at the mine told me that nearly all the farming in Canada is done by tractors and machinery. He said that tractors could be used on much of our Altiplano but would not be useful on our small fields." (Why do you suppose this would be so?)



The street where Emanuel's father bought the stove.

Emanuel stared at all the metal tools and wondered what kind of machine would be able to mind his sheep on the mountains.

"Let's go into the tool shop," said Father, leading the way.

He wandered among the farm sickles, forks, and other tools, and then picked up a new hoe which he needed very badly. While he was arguing about the price, Carlotta and Mother were busy in another part of the store. They had found what mother needed so badly — a stove. It was an all-metal wood-burning stove.

"What are the pipes for?" asked Carlotta.

"They are used for taking the smoke from the fire out through the roof. You won't have smoke in the house any more," replied the storekeeper.

Carlotta kept asking questions about the stove. How wonderful it would be for

Mother to have a stove like this! She could cook and heat water all at the same time. When the storekeeper gave them his best price, Mother and Father went off by themselves to talk it over. When they turned about, Carlotta could see the answer on their faces.

"We have just enough money," Father announced proudly. "We'll take it."

Carlotta jumped up and down with joy while Emanuel walked all around the stove, opening and shutting its doors. Suddenly Emanuel stopped, a puzzled look on his face.

"How will we get it home?" he asked.

"We could never carry it," exclaimed Carlotta.

The storekeeper gave part of the answer. "We can take it apart," he said.

"Then the llamas can carry it," Emanuel shouted, happy to have found an answer.

"We won't be able to take it all in one

trip, but I'll let you come back again with the llamas," Father said to proud Emanuel.

As the family left the store, the storekeeper was busily taking the stove apart.

"We'll come back later for it," Father called to him.

On the way back to the market square Mother bought the dyes she needed, and at one place Carlotta and Emanuel stopped for a long time. This was a school. Emanuel and Carlotta had never been to school and wondered what it would be like. As though knowing what they were thinking, Father said that by next year Emanuel and Carlotta would be going to school.

Father and some of his neighbours who worked in the mine were planning to save their money to hire a teacher from the town. They were all going to work together to build a little school. Emanuel and Carlotta would then take turns at watching the sheep and going to school. When Father told them this, Emanuel and Carlotta thought this was the happiest moment of their lives.

Back in the square, many people had gone or were leaving.

"It will be dark long before we get home," said Father as he brought the llamas from the market corral.

It was time for us to thank the family for our visit and to say good-bye. We were sorry to see them go, for Carlotta was already making plans for next week.

"May we come back for the fiesta next week?" asked Carlotta.

"Why of course," replied mother. She would not think of missing the fiesta.

At the fiesta. Fiesta days are the only holidays the Indians have.



Fiestas are special celebrations in the town. Indian families from the country around join with the people in the town to celebrate. There are parades, and dancers in costume put on performances in the street. As the parade and people move through the streets, they throw rolls of bright paper into the air.

DO

1. Why would the family rarely have fresh vegetables or meat at home?
 2. Why would it be difficult to use tractors on small altiplano fields?
 3. What did the family buy while they were in town?
 4. Why would a stove be better than the small fire the family used to cook over?
 5. How are schools and the teachers in your community paid for?
-

Night came quickly but the big bright moon was already high in the sky showing clearly the road and mountains. Emanuel and Carlotta were not saying much now. They were thinking. Mother was thinking about the stove that would be so useful to her. Father was thinking about his land and the tools he would buy some day. Carlotta was dreaming about school and the mountain-blue skirt she would have soon. Emanuel looked forward with delight to the return trip he would make by himself for the rest of the stove. Baby Poco did little thinking. He was sound asleep on his mother's back. Everyone was a little out of breath from the long climb.

The moonlight in the cold night shone brightly on their small home up ahead. How welcome a sight it was to the tired, happy family who made their simple living on the high Altiplano — the roof of the world!

SUMMARY QUESTIONS — 5

1. What is the climate like on the Altiplano?
2. How is farming on the Altiplano different from farming in Canada?
3. Why must everyone work in Emanuel and Carlotta's family?
4. What is each person's work?
5. Why are llamas important to the family?

A globe showing the world's continents. The word 'AFRICA' is written vertically on the left, 'EURASIA' is written horizontally across the top, and 'AUSTRALIA' is written diagonally on the right. The oceans are a deep blue, and the continents are shown in various shades of green and brown to represent different elevations and vegetation.





Living on a Sheep Station

A COMMUNITY IN AUSTRALIA

The Island Continent

Australia is a country but it is also called an "island continent." Do you know what that means? A continent is a very large piece of land separated, or nearly separated, from all other land areas. Australia is an island but it is large enough to be a continent as well.

Do you know the name of our continent? Does our country cover all of our continent?

There are only six continents in the world. They are North America, South America, Eurasia, Africa, Australia, and Antarctica. Eurasia is made up of two parts, Europe and Asia. Look at the continents on the globe. Which do you think is the smallest?

Notice how each continent is cut off from the other continents by water. But

if you look closely you will see that Africa touches Eurasia. Also, North America is joined to South America by a narrow piece of land called an *isthmus*. Australia is completely separated from her neighbours by water, and hence is an *island continent*. Can you find another island continent?

DO

Use the map of Australia on page 112 to do the following:

1. List the mountain ranges and lowlands shown on the map.
 2. List the largest islands that are near Australia.
 3. List the bodies of water that are around Australia.
 4. Write the name of a cape, a peninsula, a strait, and a reef.
-



The port city of Sydney, Australia, where Bobby changed planes



Figure 1
Southeastern Australia

Two Days to Winter

Bobby had to change planes in Sydney. His trip from Vancouver by jet airliner had taken two days, and he was feeling very excited. At the Sydney airport he heard a lady's voice say over the loud-speaker: "Australian National Airways announce the departure of Flight 376 to Wagga Wagga." Bobby knew that this was for him. He passed through the barrier with the other passengers and walked across the runway to the plane.

"Wagga Wagga," he said to himself, as he had done so many times during the months before his school year ended in Vancouver. Going to Australia was all he had been able to think about since the invitation had come for him to spend a year there. His Australian cousins would meet him today in Wagga Wagga. That odd name, his cousin John had told him in a letter, meant "far, far away." But it was no longer far away!

In an hour the plane landed at the town of Wagga Wagga. There waving excitedly to him were Mr. and Mrs. White, who were his uncle and aunt, and their children Betty and John. They greeted him warmly. "Come along to the car," said Mr. White. "We have about forty miles to drive."

It was windy and very dusty as they headed westward. "This is our winter," John explained. "You have jumped from summer to winter in two days!"

Bobby looked about him carefully. What a difference from winters in Canada! There was no snow, and everything looked

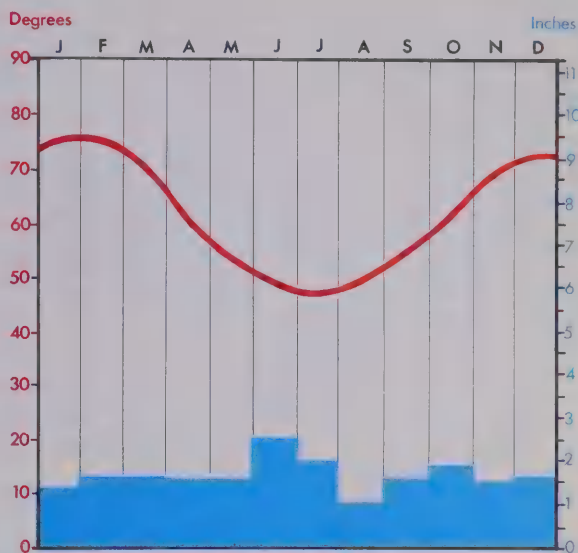


Figure 2. Temperature and rainfall at Wagga Wagga for one year

green. Even the trees kept their leaves. He did notice that it was cooler than the summer weather he had left behind him in Vancouver, but it was more like spring or autumn at home than a winter's day.

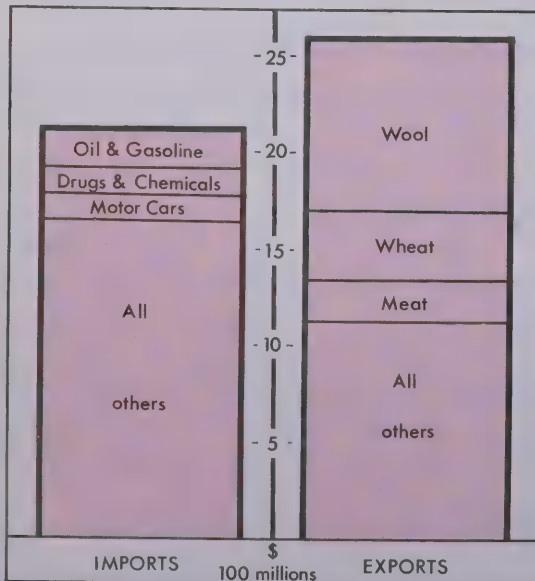
DO

1. In Wagga Wagga which three months are the warmest? (See Figure 2.)
2. Which three months are the coldest?
3. Which are the winter months?
4. Are these different from the winter months in your community? Why?
5. How far is Wagga Wagga from Sydney? (See Figure 1.)
6. Does the Murrumbidgee River flow east or west through Wagga Wagga?
7. Tell about the land you would probably see on a trip from Sydney to Wagga Wagga.



The land looked like Canadian prairie with trees.

Figure 3. Australia's exports and imports in a recent year



The Australian Ranchlands

LAND

The land the Whites drove through was flat and grassy, like the prairies in Canada, but with quite a few trees. Old trees with stringy bark and long flat leaves lined part of the roadway. Bobby could see clumps of other trees scattered in the green fields. From time to time the car passed flocks of big woolly sheep. The winter season held no problems for them because of their thick coats and green fields to graze in.

"What a lot of sheep there are!" remarked Bobby.

"Yes," said Mr. White proudly. "This is the biggest wool-growing area in the world, and we live just about in the middle of it. In Australia we have more sheep than any other country in the world!"

"That isn't all," said Betty. "We supply wool to more than fifty countries."

Bobby was impressed. He wanted to remember these facts to tell his father when he wrote home.

DO

Figure 3 shows what Australia bought from and sold to other countries in a recent year.

1. Did Australia buy more than was sold that year?

2. About how much did Australia spend on imports, and receive for exports, that year?

3. Does this chart tell what other things besides wool were exported?

4. What appears to be the most important export?

5. What sentences in the story help prove your answer to question 4?



A sheep station on the Murrumbidgee River

"Blue Gums" Sheep Station

FACTORS ▼

At a white gate with "Blue Gums" painted on it John jumped out, opened the gate for his father, and shut it behind him. "Blue Gums" was the name of the Whites' sheep ranch, or sheep station as it is called in Australia. The station got its name from a fine stand of evergreen eucalyptus or "gum" trees around the front gate.

"It is exactly a mile from the gate to our house," Betty told Bobby as John returned to the car and they started off.

"It must be a very big sheep ranch," said Bobby. "I mean, sheep station."

"We have about twelve hundred acres," his uncle told him. "That is nearly two

square miles, which is about average in these parts. But away out west, where it gets very dry and the grass is thinner, sheep stations may be a hundred times as big as ours. A friend of mine has a station covering two hundred square miles. It is nearly four hundred miles from the nearest town and railway station, and so it is very lonely."

"His children do their school work by mail and listen to their teacher on the radio," put in John.

"Radios act as telephones there," added Mrs. White, "and if someone gets sick they have to call in the Flying Doctor from Broken Hill."

The Whites' farmhouse, called a "homestead" in Australia, was a big clapboard building painted white. Like nearly all Australian homes, it was all on one level. A wide verandah completely surrounded it, to keep it cool in summer. The metal roof was painted green. At one corner of the house two big round metal tanks collected rain from the roof for drinking water. Several trees around the home gave shade in summer and protection from the wind.

Beyond the garden was a long building open at the front. This was the garage, which housed the car, a big truck, a tractor, and other brightly-painted farm machinery. Behind the house, next to the orchard, were a bunkhouse used by the travelling shearers and a huge wool-shed, bigger than most city houses.

"That is a very important building," said John. "We do all the shearing in there. There is room to store the bales of wool and to house some of the sheep when necessary, too. We have five shearing stands, so five men can work at once. Shearing is about the only job Dad does not do by himself. It is an art that is not easy to learn."



Figure 4. Farm buildings at Blue Gums

DO

Copy the symbols from the map in Figure 4 into your notebook, and make a key for the map.



The sheep are put in pens for shearing in the morning.

A Tour of the Station

FACTORS

Mattie, the Whites' sheep dog, joined Mr. White and the children on a quick tour of the station. "She is a Border collie," explained John, "quite a good sheep-dog, although she would never win a prize at the show. Her name is really Matilda, after the song 'Waltzing Matilda.'"

Driving slowly down toward the front gate again, Bobby admired the Whites' two big fields of green wheat. Mr. White told him that wheat was only a sideline to growing wool. "We usually have about three hundred acres of wheat each year," he said. "When we have harvested the wheat we can run the sheep on the stubble. After the sheep have grazed the stubble in the old fields we plow it up. Then we plant grasses. It is not good for the soil to grow wheat in it too often, so we grow wheat in a different part of the farm each year."

Most of the fifteen hundred sheep on the farm were in the northwest paddocks, which were also shown to Bobby. "We have two kinds of sheep," John told him. "About a thousand of the sheep are Merinos, which produce thick coats of fine wool. We have a big Merino ram called Caesar. But Merino sheep are only good for wool. Because Dad can make money by selling fat lambs, we usually keep about five hundred Corriedale sheep. Corriedales produce fairly good wool, and are also good to eat. We sell about five hundred Corriedale lambs to the meat-houses in Sydney each spring."



Figure 5. Plan of Blue Gums sheep station

DO

Write answers to these questions:

1. What is most of the land on the station used for? What kinds of sheep are raised on the station?
2. What crop is of next importance to wool?
3. What would be kept in the earth tanks? (Figure 5.)
4. About how far is the drive from the homestead to the access road?
5. How far would you walk if you walked around the outside of the sheep station? (Remember that an acre is about 209 feet wide by 209 feet long.)



How is this school different from your own?

Winter at "Blue Gums"

FACTORS
▼▼▼

"We have a bike for you to use," said John to Bobby the next Monday morning. It was a school day for John and Betty. "The school is four miles down the road."

"I shall ride my pony," Betty said.

It was a cold winter's day in July when the three children set off down the road to the schoolhouse. They met other boys and girls on the way, some on bicycles, others on ponies. Everyone wore a coat over a thick sweater.

Bobby was very surprised when he saw his new school. It was all by itself in a grassy field, with scattered gum trees along the fence. It consisted of one big room with a verandah. Mr. Henderson, the

school teacher, lived in a house next door to the school.

There were only nineteen pupils in the whole school, in different elementary school grades. Bobby was amazed to see one teacher teach six grades all at once. Mr. Henderson had divided the pupils into groups and would spend some time with each group in turn while the others worked on their own.

Bobby found his lessons interesting, and worked hard like his new Australian friends.

After school each afternoon the children practised hitting a ball with tennis racquets. Soon Bobby was learning the rules of tennis. When summer came, John told



Tennis players from Australia are famous all over the world.

him, the boys would be playing cricket in the school yard. Cricket is a very popular game in Australia.

After school Mr. and Mrs. White often played tennis with the children, for winter was not a very busy season on the sheep station. Most of the farm work at this time consisted of repairing fences, cleaning the farm machinery, and collecting and chopping wood.

A wood stove kept the kitchen warm in winter. Each evening a fire was lit in the big open fireplace in the living room. It was so cosy and cheery that no one wanted to go to bed.

John and Bobby had the job of collecting kindling wood for the fires. Bark,

twigs, and small branches were always dropping from the gum trees on the farm and along the road. The boys would gather a bundle on the way home from school each afternoon. Betty's job was to help her mother each day in the house and garden.

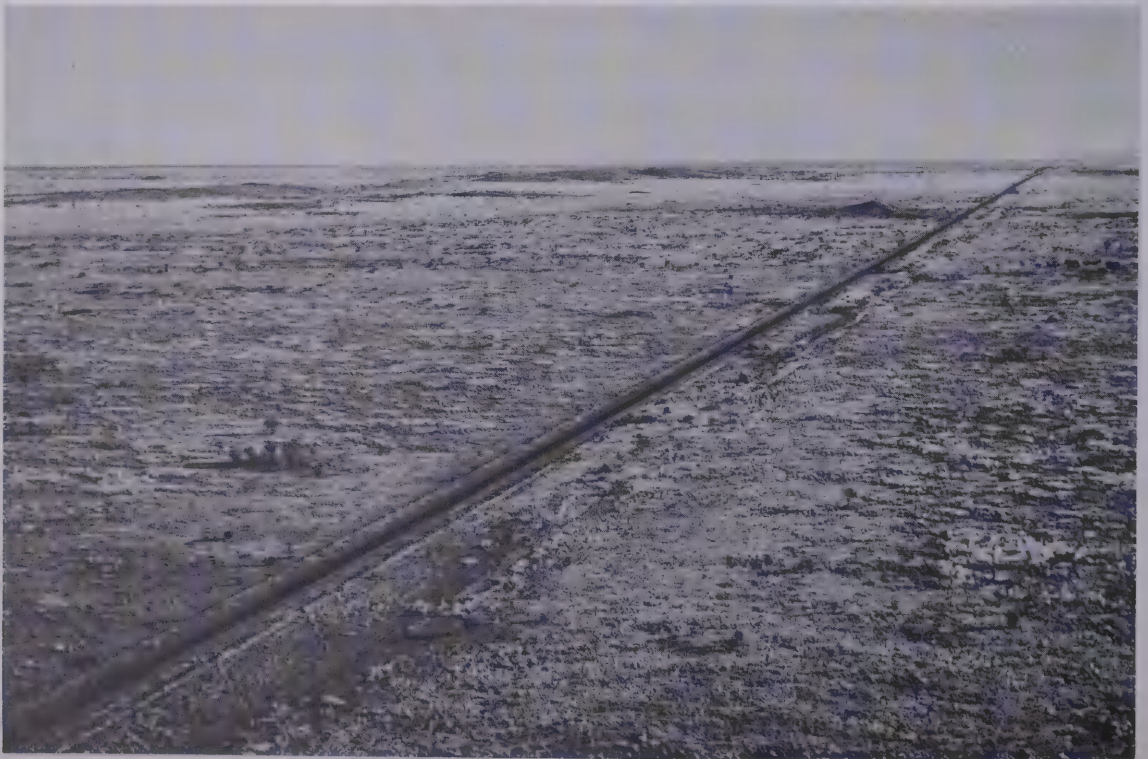
DO

1. Make a list of five topics Bobby might tell his Australian schoolmates about in a talk on his home and life in Canada.
 2. How was Bobby's school in Australia different from your own?
 3. What farm activities were carried on at "Blue Gums" in the winter?
-



Where in Canada would you see land like this?

How do you know this is desert land?



The Grasslands

LAND, CLIMATE

Bobby learned many things about his new homeland. He learned that the huge grasslands of eastern Australia lie between the coastal mountains and a vast desert in the centre and west of the continent. He learned why these grasslands were so good for raising sheep and wheat, and wrote to tell his father about it:

...Winds called the Southeast Trade Winds blow in from the sea. They drop most of their rain as they rise up to go over the mountains (called the Eastern Highlands) that lie between Uncle's farm and the coast. They do not have much moisture left when they pass over Uncle's land. Forests grow well on the coast and on the mountains because there is so much rain, but here there is only enough rain to make grass and scattered trees grow. This is ideal for sheep. (In wet climates they get diseases such as "foot-rot.")

Sheep graze over thousands of square miles in this part of Australia. Because the rain is brought by winds from the east, there is plenty of good pasture on the eastern side of the grasslands, and farms can be 'small' like Uncle's. The poorest grazing land is out near the desert in the west. As there is little grass, the stations there are very big.

Uncle says the best wheat lands are the same as the best sheep lands. This is because wheat is a grass and grows well where the rainfall has helped to make a grassland. East of the highlands the climate is too wet for wheat. The far west is too hot and dry for wheat. But here on the grasslands farmers can raise both wheat and sheep easily . . .

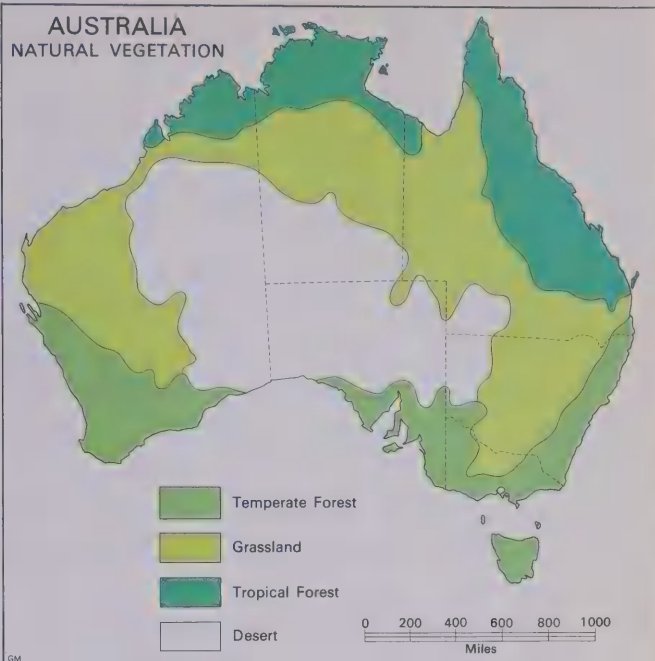
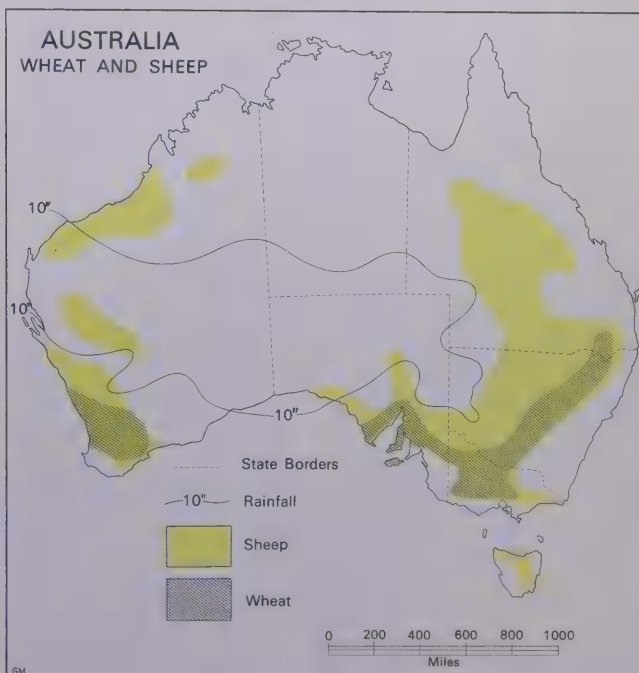


Figure 6. Natural vegetation in Australia

DO

1. What kind of land makes up the largest part of Australia?
2. In which area would the rainfall be the least?
3. Which areas would be best for farming? Why?

Figure 7. Sheep-raising and crop-growing areas in Australia



Shearing

FACTORS

It was the spring month of September, and everyone was looking forward to the arrival of the shearers. The shearers always work in gangs of five to eight, and move southward from farm to farm.

At last it was the Whites' turn. Even before the children reached the front gate on their way home from school they could hear the hum of activity in the shearing shed. All the sheep had been "mustered" (gathered together) and were bleating in pens outside the shed. Betty, John, and Bobby pedalled as fast as they could up the dusty road. They could hardly wait to watch the men at work. Soon they could see the cars outside the shearers' quarters and knew that the men had settled in. For the next few days mother would be cooking big meals for the shearers and treating them like royal guests.

All three children reached the shed at once. What a sight there was inside! The

hall was a scene of great activity. Dressed in overalls, five big men were bent over the stands. Each had a sheep between his legs and was clipping it with big electric shears.

"Why, it is just like a barber's shop," exclaimed Bobby. The shears were like electric hair clippers, but larger.

Older boys were gathering up the woolen fleeces as they were cut. They carried them to big tables at the end of the shed. Here, a man was sorting them according to quality. This man was a wool-classer. His was important work. After he had graded them, the fleeces were piled into big sacks inside metal stands. When the sacks were full, presses were pulled down to hold the wool in while the bales were wrapped, sewn, and marked with the grade or quality.

Each time a shearer finished shearing a sheep he yelled, "Wool away!" as he pushed the frightened sheep out a door. Then

The sheep are shorn with electric clippers.



Broken or dirty wool is taken off before the wool is graded.



through another door he would drag in the next sheep from the pen outside. He would be annoyed if the last fleece had not been removed from his stand by this time.

Bobby watched a shearer cut cleanly first along the sheep's belly. Then in big strokes he cut the whole fleece away, finishing up at the back. It looked just as if he were peeling someone's coat off. Bobby was surprised to see how white the wool was on the clipped side of the fleeces, while the outside was grey with dirt.

John's father said that a good shearer clips one sheep every two minutes, and up to 100 or 150 a day. Since the men get paid for the number they shear, they want to do as many as they can each day. They receive about \$20 or \$25 per hundred sheared sheep. It is hard work and may bring back-aches and stiff fingers, wrists, and legs.

Bobby decided that he would not like to be a shearer, even though it was such important work.

The man on the stand at the far end yelled, "Tar Boy! Where's that rousie?" (He meant "roustabout," or hired hand).

One of the boys dropped the fleece he was carrying and grabbed a small tin to take to the shearer. Bobby watched while warm black tar was dabbed onto a newly shorn sheep. Then the sheep was pushed out into the pen with the other naked animals.

John explained, "The shears must have slipped and cut the sheep. The tar seals the wound."

When it got too dark in the shed the

shearers finished for the day. They looked very tired as they went off to clean up before dinner. The children helped Mr. White herd as many of the unshorn sheep as they could into a room at the end of the shed. If it rained during the night, these sheep would be dry for shearing in the morning.

DO

1. How much would a shearer receive for five days of shearing for Mr. White?
 2. What work does a "rousie" do?
 3. Why must the unshorn sheep be kept dry?
-

After grading, the wool is packed or baled into 300-pound packs.





Buyers at a wool auction

Selling the Wool

FACTORS
▼

Mr. White employed a trucker to take his fifty heavy bales of wool to the railway station in Wagga Wagga. Each bale weighed about 300 pounds. From here they went by train to a wool broker's firm in Sydney. The wool broker owns huge warehouses. He would display some of Mr. White's wool on the showroom floor. Wool buyers from all parts of the world come to Sydney at this time of the year. If they like the look of the wool, they are prepared to pay a big price for it. The

wool is sold by auction; that is, whoever bids (offers) the most money gets the wool being sold.

Mr. White listens each day to the radio for the results of the wool sales in Sydney, Melbourne, and Albury. He usually receives about 45¢ per pound. The wool broker takes some of the money for his part in selling the wool, and there are many other expenses including transport, insurance, and shearers' wages. But Mr. White is happy with his profit.

Sydney and Melbourne are the two biggest centres for selling the season's wool. From these cities, networks of roads and railways reach out all over the sheep grazing lands. Truckloads and trainloads of wool move to the cities from August to November.

DO

1. List the expenses Mr. White had to pay before the wool was sold.
2. How much money would Mr. White receive for 100 pounds of wool?
3. List the jobs that must be done before the wool arrives in the city.

Wool on display for the buyers



Australian wool is exported to countries around the world.



October Is Dipping Time

FACTORS

Before summer came the sheep had to be “dipped” to prevent ticks, lice, and other harmful insects from troubling them. Mr. White needed help for this work, and chose a Saturday so that John, Bobby, and Betty could help him. The day before, Mr. White mustered the sheep into the pens near the wool-shed.

The dip was a big round empty tank with sprays in the top and bottom. Mr. White added chemicals to another tank of water. Using the tractor motor, he pumped this mixture into pipes leading to the sprays in the first tank.

Betty opened one of the sheep pens and the boys herded about twenty-five sheep into the dipping tank. Mr. White turned on the pump and the sheep were sprayed from the top and bottom for nearly one minute. Then he stopped to let the startled sheep have a minute to breathe before being sprayed a second time.

As Mr. White let a group of dipped sheep out the back door, John and Bobby chased another group into the dipping tank. They thought that it was great fun, but they were getting tired by the time the job was finished. It took them about five hours, with a break in the middle for lunch, to dip Mr. White’s fifteen hundred sheep.

After the dipping was finished the sheep had to be moved to a new field. Mattie, running backwards and forwards and barking at the heels of any straying sheep, was able to move the flock quickly down to the front gate and into the paddock.



The outside of a spray dip and the pens where the sheep dry off

DO

Copy the following chart into your notebook and complete it.

DIPPING	
JOBS AT DIPPING TIME	WHY?
1. The sheep were mustered into pens.	?
2. Chemicals were put in the water of one tank.	?
3. The tractor motor was hooked to the pump.	?
4. Only 25 sheep were put in the dipping tank at one time.	?
5. The spray was turned on for only about one minute at a time.	?

Sheep in a spray dip





Kangaroos travel in groups called mobs.

Kangaroos and Rabbits Are Pests FACTORS

"Would you like to see a kangaroo?" John asked Bobby one afternoon. "There are usually a few near the waterhole in the far paddock at sunset. If we are quiet we may see them."

The two boys crossed the paddock. Sure enough, there were four big grey kangaroos. Creeping closer, Bobby could see a baby one peeping out of its mother's pouch. Australians call baby kangaroos "joeys."

Bobby was amazed to see the kangaroos jump along so quickly on two legs, using their huge tails for balance. Then they jumped cleanly over the fence. Bobby decided that when the days were longer in summer he would try to take a photograph of the animals at the waterhole to send home to his father.

Mr. White told Bobby that kangaroos are pests in Australia. "They eat the grass that sheep can eat. Many people shoot them because of this, but there are not enough of them around my place to worry me. Anyway, Mattie helps to keep them outside the fence."

On another occasion Mr. White told Bobby about the rabbits. "Rabbits used to be a serious problem. The early settlers brought them out from England as pets and they ran wild. Without natural enemies to control their numbers, soon hundreds of millions of them were eating the grass in the sheep pastures. Farmers had to build expensive fences to try to keep them out."

"I haven't noticed many rabbits around," said Bobby.

"No," said his uncle, "The government had men bring in some diseased rabbits. The disease spread rapidly and the rabbits died. I read that Australia can now run an extra two million sheep on the pasture saved. This results in much more wool."

DO

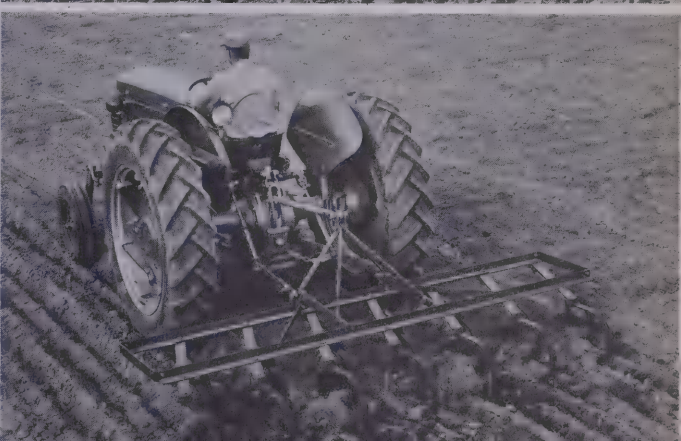
1. What animals are listed as pests?
 2. Sketch a kangaroo and write a list of facts about it below your drawing.
 3. How were the rabbits killed?
 4. How did rabbits and kangaroos hurt the sheep ranchers?
-



Harvest Time

As the days grew hotter, Mr. White decided it was time to cut his hay. Australian farmers use the word “hay” for any crops, including oats and wheat, that they cut and store as food for their animals. Attaching the binder to his tractor Mr. White set out for his field of oats. The binder machine cuts the oats and binds it into bundles called sheaves which drop to the ground behind. John and Bobby helped by collecting the sheaves and standing them upright in groups or *stooks* to dry out. When dry they would be collected and used to feed the sheep in summer, when pastures were dry and there was little grass.

In December the weather turned very hot. Summer had come. Each day Mr. White went out to look at the ears of some of his wheat, now a golden yellow colour. One day in December he decided the wheat was ripe enough to harvest. The harvesting had to be done as quickly as possible. If it rained the grain would spoil.



Which of these pictures shows a plow, a combine, a cultivator, a baler, a seed drill?

Up at sunrise, Mr. White attached the combine machine to the tractor and started the harvest. The huge machine did three jobs in one. It cut the stalks low enough to get all the heads of wheat. It separated the grain from the husks and straw (this is called *threshing*), and it collected the grain in a bin.

Mr. White hired a trucker to take his wheat to the grain elevators at the railway siding ten miles away. When the truck was weighed and the wheat unloaded the truck would return for another load.

From the fence the children watched the combine as it moved round and round the paddock, cutting from the outside in towards the middle.

When it got too dark to see, Mr. White came into the house. He looked tired.

"How much did you cut today, Dad?" Betty asked at dinner.

"I have cut about 50 acres," he replied. "That is not too bad for one day's work on my own. I think we have 1000 bushels there."

For another five days work continued from dawn till dusk. Fortunately, it did not rain. At the end of that time three hundred acres had been cut. Mr. White felt sure he would get a good price for his wheat, which was now in the grain elevators waiting to be shipped by rail to Sydney. There it would be sold for him by the Australian Wheat Board. About half the total wheat crop would go to other countries, and half remain to satisfy Australia's needs.

DO

1. What months are harvest months in Canada? In Australia?
 2. How many bushels an acre did Mr. White grow?
 3. If wheat sells for \$2 a bushel, how much would Mr. White receive for 1000 bushels?
 4. List the expenses Mr. White would have in growing wheat.
-

Homestead and outbuildings on a sheep station



Summer Vacation at the Beach

FACTORS
▼▼

It had been a very successful year on the farm, and Mr. White said, "We shall all have a holiday at the beach."

"Sydney!" the others exclaimed, "How wonderful!"

School broke up on the Thursday before Christmas. That night the children helped Mr. and Mrs. White pack the bags and put them in the car.

They set out early in the morning and travelled northwards across the grassy plains. Bobby noticed that most farmers had finished the harvest. Like his uncle, they had their sheep grazing on the stubble. The countryside looked very beautiful with green and yellow paddocks. Scattered clumps of eucalyptus provided some shade for the poor sheep. It was

very hot for them in their wool coats. The temperature was over 90 degrees.

"I can't wait to jump into that cool water at the beach," said Betty.

Soon they were in the hilly country which forms the western foothills of the Eastern Highlands. They climbed up over the highlands and then travelled through much forest and bushland before reaching the coastal plains around Sydney.

The White family and Bobby spent two weeks in a rented apartment at Manly Beach on the Pacific Ocean. The children played in the surf and on the beach. Sometimes they would go swimming in a huge pool on the shores of Sydney Harbour. Bobby and John liked to watch the older boys riding the big breakers on their surf boards.

Beaches near Sydney have a heavy surf from the Pacific. Lifeguards work in teams. Here they compete in life-saving drills at a surf carnival.





How many forms of transport use Sydney Harbour Bridge?

One clear sunny day Mr. White announced: "Today we shall take the ferry up to the city."

The children were excited. The ten-mile journey up Sydney Harbour took thirty-five minutes. To get the best view the children decided to stand on the open upper deck of the big Manly Ferry.

The Harbour was very beautiful. All

the little bays were dotted with white sailing boats. At some of the wharves around the port area the children saw the big passenger liners and cargo vessels that link the island continent with the rest of the world. They also saw the big wool stores and warehouses where bales of wool are stored at auction time and while awaiting export. Further up the harbour they saw

the huge grain elevators to which Mr. White had sent his wheat. And the Harbour Bridge! Bobby thought it was the biggest bridge he had ever seen. John referred to it as "the big coat-hanger." Beside it was the city centre with all its tall buildings.

The family went ashore and travelled uptown on the underground railway to do some shopping. All the stores were decorated for Christmas. Bobby could not get used to the idea of Christmas time being so hot.

On Christmas Day the family took a big picnic lunch to Palm Beach, twenty miles to the north. This was a beautiful beach between the Pacific and an arm of Broken Bay. After a refreshing swim, they had cold turkey, ham, salads of all kinds, nuts, soft drinks, and fruit salad with cream. It was a wonderful day, but unlike any other Christmas that Bobby had experienced!

Soon it was time to go back to Blue Gums and the sheep. One of the neighbours had "kept an eye" on the place and fed Mattie and the fowls while the Whites were away.

DO

1. Copy these two headings in your notebook, and under them write 5 things that are done at this time of the year in each country:

*Christmas in
Australia*

*Christmas in
Our Community*

2. List the kinds of transportation the children saw on their trip to Sydney.

More Work on the Station

FACTORS
▼▼

January was the hottest month of the year. At this time Mr. White brought in the dry hay. He piled it onto the haystack behind the house. His next job was to attend to the health of the sheep.

"Drenching" is necessary to kill worms and other harmful parasites which live *inside* the sheeps' bodies. One afternoon, with Mattie's help, Mr. White mustered all the sheep into the sheep-yards by the wool-shed. Next morning the children helped. They chased the sheep down a narrow corridor between the fences. Mr. White waited at the gate with a "drench." He would grab the sheep, one by one. Forcing their mouths open and using a long syringe, or squirting tube, he squirted a dose of medicine down the throat of each struggling sheep.

"Drenching." Medicine is given sheep to kill parasites that may be inside their bodies.





"Crutching," or cutting the wool away from the sheep's tails

The next morning three shearers arrived. Mr. White had hired them to do the "crutching" and "wiggling" of the sheep. "Crutching" is cutting the new wool away from the sheep's tails, and wiggling is cutting wool away from their eyes. The purpose of both is to prevent flies from breeding in these areas and to keep the animals looking healthy.

As each sheep was finished, Mr. White dusted it with disinfectant to keep flies away. Then he pushed the sheep out of the pen into the field.

Their summer vacation over, the children started the new school year at the beginning of February. About this time, too, as soon as the farm had had a good rainfall, Mr. White started the plowing. If the soil was damp it was easier to work, and there was less chance of winds blowing

the soil away. The old wheat stubble had to be plowed in to allow new pasture to grow, and this year's wheat fields had to be prepared. It took most of the month to complete all the plowing. The plow was pulled by the tractor. Its fourteen big disks cut into the ground and turned the soil over.

After plowing, Mr. White pulled a set of harrows over the fields to break up the clods. With this treatment the soil was broken up completely, and was ready for planting.

"The ground has to be moist before the wheat is planted," said Mr. White, "so the time for sowing depends on rainfall."

Rain came early in March. This was what Mr. White had been waiting for. Even before the rain stopped he took the planter out of the garage and fixed it to the tractor. Moving up and down the new fields, the planter dug twenty parallel furrows, seven inches apart. It dropped the wheat grains into the furrows, added some fertilizer, and covered them over again. It took Mr. White several days to finish the sowing. Each afternoon the children watched from the fence. Sometimes Mr. White would let John and Bobby ride on the tractor with him and steer the machine.

DO

1. List the jobs that were done on the Whites' station in January, February, and March.

2. How were Mr. White's fields prepared for new crops?

Lambs Are Lovely

FACTORS

March was lambing time on the sheep station. Mr. White kept a careful watch over the flocks. He watched for hawks and crows which might take the new lambs. With Mattie's help, he moved the sheep to a paddock near the house.

After school each day the children went down to the paddock to see the baby lambs. They looked like fluffy toys. Betty loved to nurse them. Although she was very careful, their mothers did not like her touching them.

One evening they heard a great commotion coming from the sheep paddock. All the sheep were bleating and sounded very frightened.

"It must be a fox," said Mr. White.

He raced into the house to get his gun. Bobby and John followed him out to the flock. The sheep and lambs were running around in circles. Something was upsetting them. All three saw it at once — a mean-looking fox with a young lamb in his jaws. Mr. White took aim and fired. "You got him, first shot!" called John excitedly. But they had not been in time to save the lamb.

Later in the autumn, when the lambs were about two months old, Mr. White mustered them all into the sheep pens near the wool shed. They had to be tailed and earmarked. Plastic tags were clipped to their ears for identification in case they slipped through the fence and got lost or mixed up with the sheep of other stations. Mr. White found that he had nearly 800 new sheep. He would sell about half of



One breed of sheep found in Australia is the Corriedale.

them in the spring when they were six to eight months old. Each would sell for about \$12 at the stock yards in Sydney. The other half, mainly Merinos, Mr. White would use to replace his older wool-bearing sheep. The oldest and poorest-looking sheep he would round up and sell at the sheep yards in Wagga Wagga.

DO

1. What enemies do the lambs have?
 2. How much did Mr. White receive for the lambs he sold?
-

A grand champion Merino



Strengthening Wheat and Fattening Lambs

John and Bobby were to help Mr White muster the sheep and herd them into the wheat fields. Bobby could not understand why his uncle let the sheep into the fields to eat the new wheat.

Mr. White explained that the wheat was still young and had not started to form grain yet. Letting the sheep eat the tops off would make the shoots grow stronger later. Once the boys had herded the sheep into the wheat fields, they had to keep the animals moving so that they would not eat out an area completely. Mattie loved this work, and eagerly kept the slower sheep up with the main flock.

After this, the sheep were moved to new

pastures where the lambs could continue to fatten for the market in the spring.

Farewell to Australia

Now that winter was here again, Bobby's year in Australia had come to an end. He had to say goodbye to his aunt, uncle, cousins, and friends, and as his plane climbed into the sky he looked down on the endless grasslands that he had come to know as home. They were dotted with sheep and scattered trees. The squares of darker green he knew were the wheat fields that would turn yellow in summer, four or five months from now. Months? Bobby smiled. For him, summer was only two days away. He was on his way home.

SUMMARY QUESTIONS — 6

1. From what three products does Mr. White make his living?
2. Why are two breeds of sheep kept?
3. What happens to the wool produced by Mr. White and the other ranchers?
4. Why do the Whites have their vacation in January?
5. What are the main activities of each season on Mr. White's farm? Copy and complete this table in your notebook.

WORK ON MR. WHITE'S STATION

SEASON	ACTIVITIES
Spring (Sep., Oct., Nov.)	?
Summer (Dec., Jan., Feb.)	?
Autumn (Mar., Apr., May)	?
Winter (Jun., Jul., Aug.)	?

6. Of what importance are the railways to the rancher?

THE MAP SHOP

Kinds of Maps

We use maps most often to find places, to see what the land is like, or to trace routes. Maps may give a great many other kinds of information. Some maps tell us how many people live on the land, how much rain falls, what the temperature is, what the soil is like, what plants grow on the land. Sometimes the same map will tell us about more than one of these things.

When we use maps we must always look at the key, or legend, to understand exactly what is being shown.

Figure 8 is a resource map of Australia. It not only tells us what resources are found in Australia, but it gives us an idea of what the people do to earn a living in Australia.

Look at the legend carefully so that you

understand what the symbols mean; then answer these questions:

1. What symbol can be found in every state of Australia?
2. Which state seems to have very little or no coal?
3. What jobs would there be in New South Wales?
4. Which states grow little or no wheat?
5. Which state has the most coal?
6. Why are there only a few symbols in the middle of the map?
7. Which state has the greatest gold resources?
8. Which state seems to have the most cattle and dairying?
9. What jobs could there be for men and women in the state of Victoria?

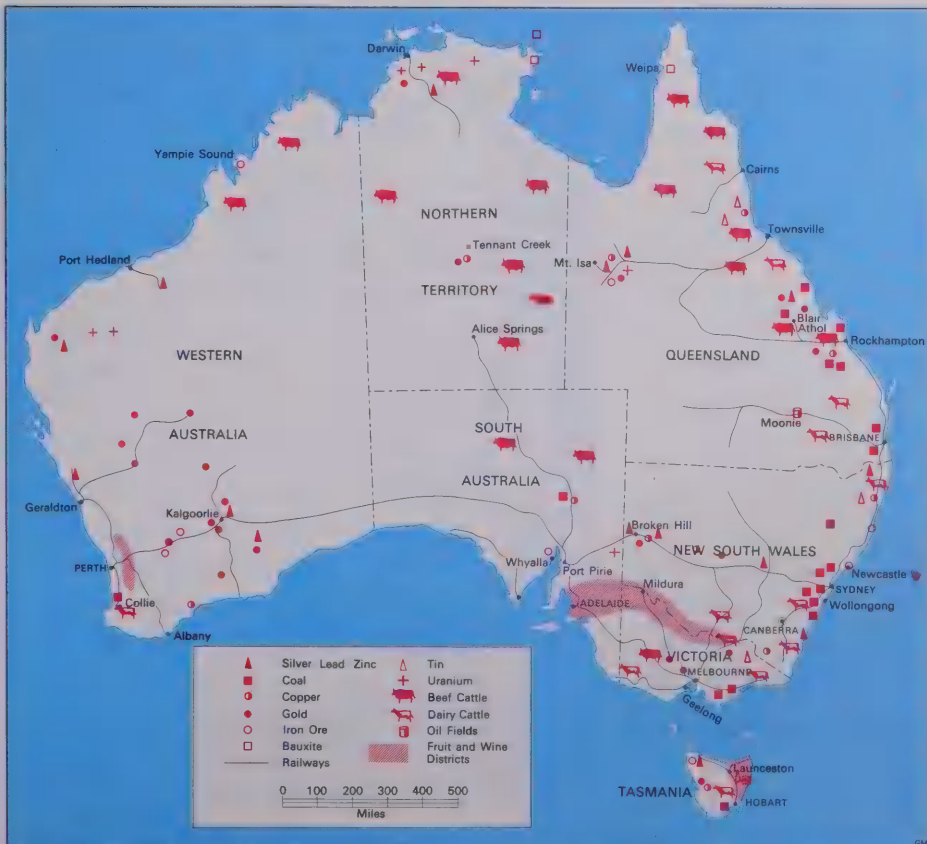
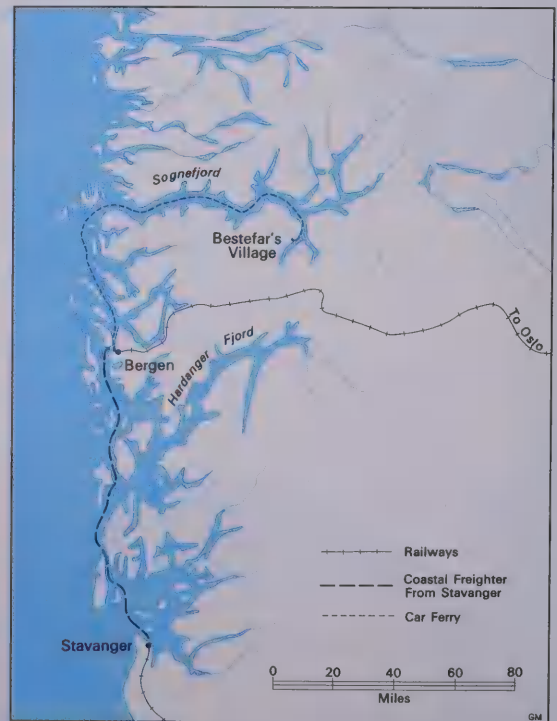


Figure 8. Resource map of Australia. Resources shown here are additional to the important grassland resources of sheep and wheat (shown in figure 7 on page 123.)



A Norwegian fiord



Gunnar's destination — Sognefjord

Living on a Mountainous Coast



A VISIT IN NORWAY

Gunnar's Trip

Gunnar Ableseth's long trip from Canada to Norway was nearly over. It was only two days ago that the jet airliner had sped him away from Montreal on his way to spend Christmas and the following six months in Norway.

Gunnar's plane had brought him to Amsterdam. Here he changed to a plane flying to Stavanger in Norway. His grandparents lived on the west coast, north of Stavanger. Gunnar was now standing at the rail of a car ferry, sailing up a long arm of the sea called a *fiord*, or inlet. At the head of the fiord was the village where his grandparents lived. Many freighters (boats that carry cargo) sail north and south along the coast of Norway. Very few of them sail up the fiords, but they stop at the mouth of each fiord.

As Gunnar's ferry sailed up the fiord he

saw the rugged snow-topped mountains of the Scandinavian Highlands. He saw small green patches of flat land around the fiords and behind them the thick evergreen forests growing up the mountain slopes. Rushing water could be heard where rivers flowed into the fiord.

As the ferry approached the village Gunnar saw many small fishing boats tied to piers near the village. He was soon to learn that fishing was one of the three main occupations there. The other two were forestry and farming.

DO

1. Is the land along the coast of Norway mostly flat plain, hilly, or mountainous?
 2. Why is it easier to travel by boat rather than by train or highway along the coast of Norway?
-

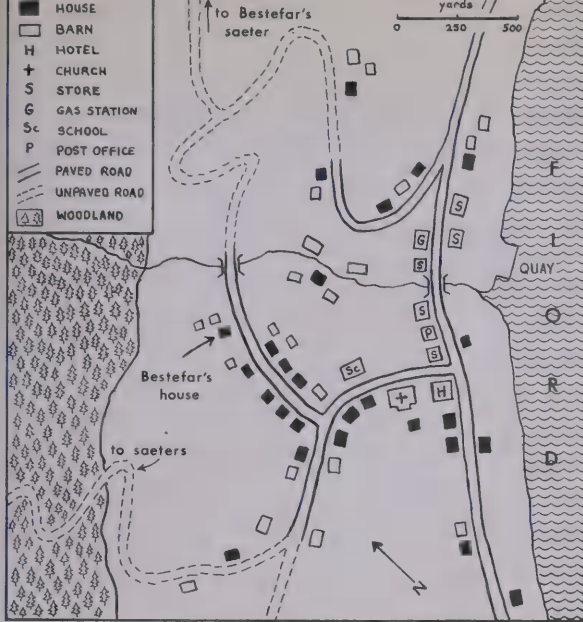


Figure 3. A map Gunnar drew of his grandparents' village

water flowing through the cold water of the Atlantic Ocean. It flows from the Gulf of Mexico along the coast of North America, across the Atlantic Ocean, and spreads along the north-western coast of Europe. The air over this water is warmed by it, and in turn warms the lands over which it blows. Because of the North Atlantic Drift, the west coastal waters of Norway are never frozen.

DO

Copy this chart into your notebook and complete it.

COMPARING COMMUNITIES

	THE LAND	THE TREES	THE WINTER
Our Community	?	?	?
The Congo	?	?	?
Norway	?	?	?

The Village

FACTORS

Most Norwegian villages are located along the narrow strips of flat land along the sides of the fiords, or at the larger flat area found near the head of the fiord.

DO

1. Make a list of the different buildings in the village. (Figure 3.)
2. Which of the following kinds of transportation would people likely use to visit other villages: car, ferry, rowboat, bus, helicopter, train?
3. Write a short description of the land around the village.
4. From what material would most of the buildings be constructed? Why?
5. What occupations would probably be important in this village?

A Norwegian village



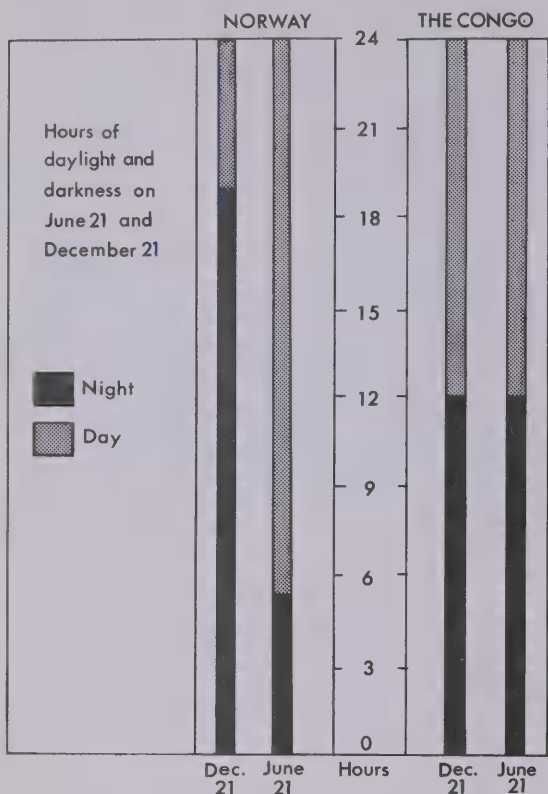


Figure 4. Gunnar's chart of daylight and darkness

A Letter Home

FACTORS
▼

December 30.

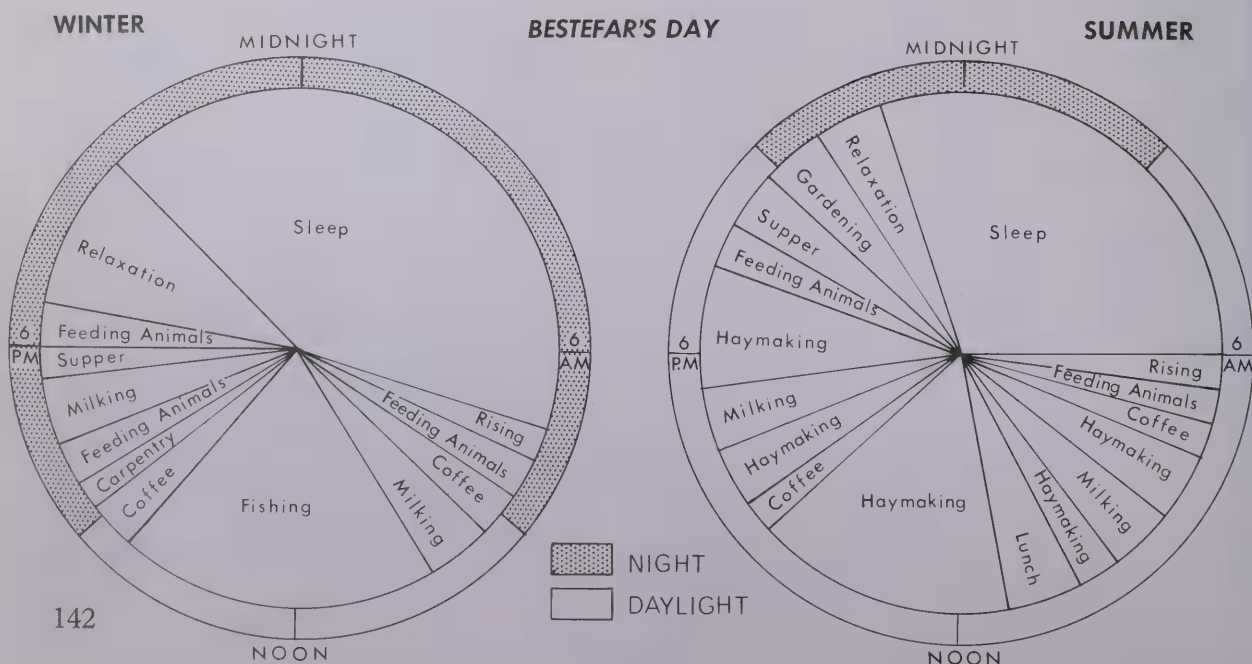
Dear Mom and Dad,

Bestemar (Grandmother) told you in her telegram that I had arrived safely. I have been very busy learning about Norway and helping Bestefar and Bestemar get ready for Christmas.

One thing I have noticed is how early it gets dark here. I asked Bestefar about this and he helped me make these charts to show you.

I was surprised to learn that Bestefar does not have the same job all year round like Dad does. This is how Bestefar spends his time.

Figure 5. Gunnar's chart of how Bestefar spends his time



It was funny but we had our Christmas dinner on Christmas Eve. We sat down to a dinner of lutfisk (fish that had been caught and dried last spring), turnips, carrots, potatoes, and for dessert, "lucky rice pudding." An almond is put in the rice pudding and the one who finds it is supposed to be lucky all year. Guess what! I found the almond.

After supper as we opened our presents we could hear the church bells ringing across the snow-covered fields. I had lots of presents including a ski sweater from Bestemar and a pair of skis from Bestefar. It was really a good Christmas although I was so far from home.

*Your loving son,
Gunnar*

DO

1. List the foods that were eaten at Christmas. Which would come from the home community? Which would have to be grown in warmer lands? Which are grown in your community?

2. Copy the words from the letter that tell you it is cold in Norway in December.

3. What is lutfisk?



Bestemar's living room

Fishing in Norway

FACTORS

The fish that Bestefar catches are picked up by larger ships, called mother ships, which buy up fish for the fish plants at Bergen. Many years ago there was a small herring cannery in the fiord, but the larger factories at Bergen were able to do a better job through the use of more modern machinery. The modern ways of shipping fresh fish, either frozen or packed in ice,



**Herring being lifted onto
the fishing boat**



Herring caught in the fish nets are hauled in.

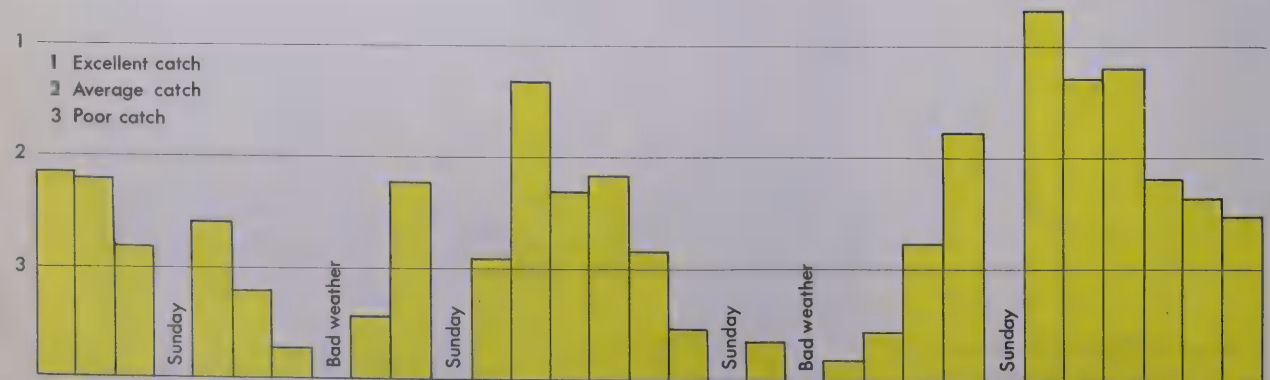
forced many small fish canneries at the heads of fiords to close.

The small wooden boat that Bestefar uses, like most fishing boats used near the shore in Norway, looks like a large lifeboat. Few of these small boats have engines. They are rowed with oars. It has been said that more than 40,000 boats of all kinds work in the Norwegian fishing industry.

DO

1. Why would Bestefar fish in the fiord and not go to the open sea?
2. On what days was no fishing done? (Figure 6.) Why?
3. What were the catches like before and after a storm?
4. How many times did Gunnar go fishing if he went fishing every Saturday?

Figure 6. A month's fishing





Cleaning codfish

The North Sea and the waters near it are the home of many different kinds of herring, all of which belong to the same fish family. Large amounts of these fish are used in the canning industry and in the herring-oil factories. The oil factories make oil and fish meal from the fish.

Bestefar talked about the Norwegian fishing industry on the days that Gunnar went fishing with him.

"It's not like the old days," Bestefar said. "It seems as if there are no fish around any more."

"But there must be some, Bestefar," cried Gunnar.

Bestefar explained. "For the two or three years after World War II the fish catch was four times bigger than it is now."

"I bet they caught too many of the fish

and didn't leave many to raise families," suggested Gunnar.

"That's quite right. The real name for it is *over-fishing*. The government has had to make rules for fishermen, so that all the fish will not disappear."

"They would have to," thought Gunnar, "or soon there wouldn't be any fish at all."

The most important fish on the coast of Norway is the cod. Most cod are caught near the Lofoten Islands. Very few are caught in the south of Norway.

DO

1. How is the fish supply in Norway being saved?

2. What kinds of fish are caught in the waters near Norway?



A saeter hut and barn



How is this land being used?

Another Letter Home

FACTORS
▼▼

May 15

Dear Mother and Dad,

There has been so much to do that I have had very little time to write. The teacher at our school is very kind and is giving me extra help with my Norwegian. I think I am getting better at it.

It is early spring and green grass is sprouting on the sides of the mountains. It will soon be time to start farming. Bestefar has two plots of land, one here near the village and another one far up on the slopes called a "saeter." A saeter is a summer pasture for cattle. Bestefar used to use his plot of higher ground for grazing cattle. Then he found that his saeter could be used for growing fruit. He planted his first fruit trees in 1959 and in 1962 he had his first apple and pear crop to send to market. Some of his neighbours grow cherries also.

Bestefar's cattle go to the saeter of a neigh-

bour whose higher land is not suitable for growing crops or trees. It is good for growing pasture grass. Bestefar and his neighbour share the money from the milk. Refrigerated trucks travel right into the hills where the saeters are, to pick up the milk every day. Up to a few years ago it was too difficult to get the fresh milk out, and it had to be made into butter and cheese.

I'm well, and Bestemar and Bestefar send their love.

Your loving son,
Gunnar

DO

1. How has the use of saeter land changed in some places?
2. What is a saeter?
3. How is the milk picked up from the saeters?
4. Where does Bestefar keep his cows?

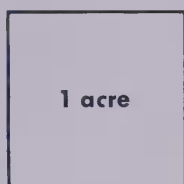
Figure 7. Plan of the lower farm

Figures 7 and 8 are sketch maps of Bestefar's two plots of land.

Bestefar's Lower Farm

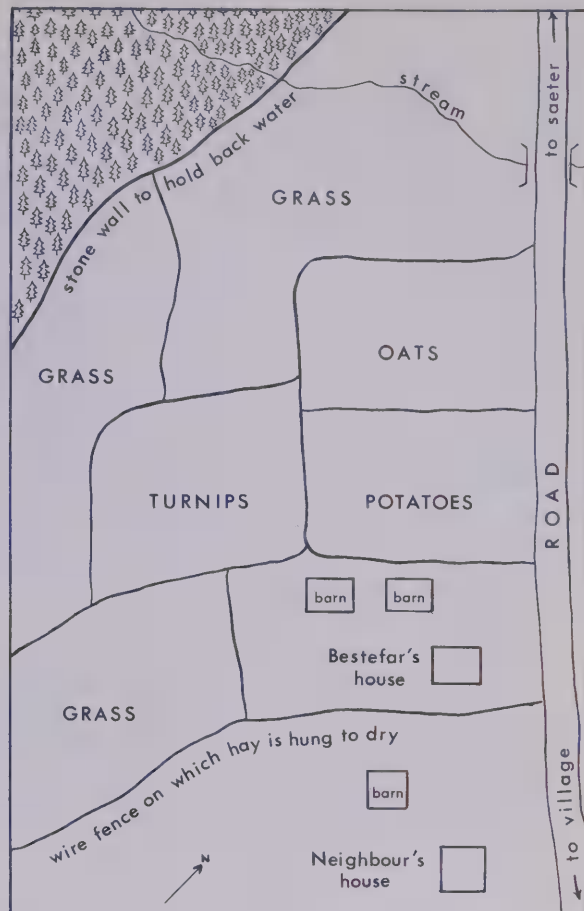
DO

1. What four crops are raised?
2. Cut out 12 squares this size.



Lay them on the map and discover about how many acres there are on the lower farm.

3. Make a legend for Figure 7.



Bestefar's Saeter

DO

1. Make a legend for Figure 8.
2. About how many acres does the saeter cover?
3. What would the buildings be used for?
4. Why is it difficult to use machinery on the saeter?
5. Write a short note about the saeter land.

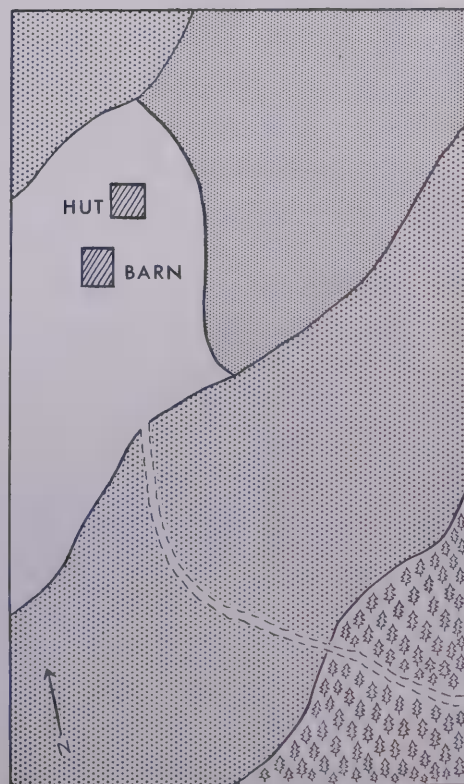


Figure 8. Plan of the saeter



Why is it difficult to use large machinery on this land?

Harvesting

FACTORS

Much of Bestefar's valley is planted in hay. When he harvests the hay crop he hangs it on fences or hay-racks to "cure." Curing is allowing the hay to dry in the sun.

Most of the farms in Norway are family farms of less than fifty acres. Because the farms are small, the slopes steep, and the distances between farms great, little machinery can be used.

The hay is gathered in big armfuls. It is taken to long lines of wire strung between posts in the field, and is hung on these fences to dry.

DO

1. Why is the hay put on wires to dry?
2. What will the hay be used for?

At the Saeter

FACTORS

Gunnar went to visit the cows at the saeter with his Bestefar. Grandfather told Gunnar that this was a good summer for himself and the saeter owner because there was a lot of grass. One season, several years ago, there had been hardly any grass on the saeters and many of the cows had to be kept in the valleys.

"We took the goats to the saeters,

though,” he continued. “Do you know why, Gunnar?” Gunnar thought for a moment and said that perhaps goats could climb and search around mountain rocks to find enough to eat. Grandfather nodded, and added that in some better areas sheep could take the goats’ place.

There was a small log hut at the saeter where Gunnar and his Bestefar were to spend Saturday night. The house had been built many years ago and the sod roof was thick and green with grass.

“There’s nearly enough grass growing on the roof to make a meal for one of the cows,” laughed Gunnar.

Inside the house there were two rooms. The first room was much larger than the second room. It was living room, kitchen, and bedroom, all in one. The beds were built into the wall like bunks and there was a big fireplace on another wall. Gunnar bounced on one of the beds and to his surprise found that the mattress was filled with straw. It was rather lumpy, but he found that if he wriggled around in it he could make it comfortable. The second room was used as a store room. Gunnar saw pails, brushes, and an old cream separator standing against one wall.

There was a knock on the door and the saeter owner, Lars Enequist, came into the big room.

“How are the cattle doing, Lars?” asked Bestefar.

“Good, good, better than last year, my friend. We have had enough rain and the grass is growing well. The milk trucks have been collecting much milk each day.”



Herdsmen’s huts on a saeter

Lars had coffee and bread with Gunnar and Bestefar, and said he would drop by again the next day if they were still there.

“*Farvel, farvel!*” he called as he walked across the grass.

DO

1. Copy the following chart into your notebook and complete it.

A SAETER HUT

	MADE FROM
Walls	?
Roof	?

2. What furniture was in the saeter hut?
3. Draw a plan of the floor of a saeter hut. Mark in the doors, windows, and furniture.
4. How could buildings be built on very steep hills?



What industry does this picture show?

A Norwegian lumberjack



Forestry

FACTORS

When Gunnar and Bestefar arrived home from the saeter they found that Gunnar's cousin, Knut, had come to the farm for a visit. Cousin Knut was one of many Norwegian people who work full or part time in the forest industries. An *industry* is a business or trade.

Knut told Gunnar that much of the forest land in Norway is owned by farmers who work in the forests on a part-time basis. "Just as Bestefar fishes in the colder parts of the year, so other farmers cut trees for saw-mills and for mills that make paper."

"Some farmers do that in Quebec and Ontario, too," said Gunnar.

Knut pointed out the window. "The main trees we have in Norway are the Norway spruce, and the pine and birch.

"Those trees with the white trunks are birch trees. As you go north along the coast you see many more of these trees."

"What are they used for?" asked Gunnar.

"Birches are used for fuel, a little for furniture, and maybe some for skis. Men who look for new ways to use trees hope that the birch will be used in the pulp industry."

Knut explained the uses of some of the other important Norwegian trees. Spruce trees are used by the pulp and paper mills and also in house-building. The pine tree, he said, was found all over Norway and could be used in construction and for making plywood.

"Do the farmer-foresters put their logs

into the rivers, like they do in Ontario and Quebec, and let them float down to the fiords?" asked Gunnar.

"You could call it floating, I guess," laughed Knut, "but all our rivers are very fast, and sometimes the logs move in a tangled, jumbled, roaring mass. And I expect there is one difference between our logs and your logs when they are in the rivers," he added. "We peel the bark off our logs before we float them."

Different owners' logs get mixed in the rivers, Knut explained, but they are separated by means of a log mark. Each log-buyer marks the trees he buys with a special mark so that they may be sorted out when they reach the mills.

DO

1. Why would it be a good idea to peel the logs before putting them in the river?
 2. What are the three most important kinds of trees growing in Norway?
 3. What uses are made of the logs in Norway?
-



An industrial plant in southern Norway

Industry in Norway

FACTORS
▼▼

Knut says that other industries besides farming and fishing and forestry are now just as important. These are mining, the making of hydro-electricity, and shipping. Mining is digging for something valuable such as coal or gold. Hydro-electricity is electricity made from water power.

**An aluminum plant
at Aardal, Norway**



NORTHERN LANDS

Resources of Norway





Figure 9. How four countries get power

Norway sells minerals such as iron, copper, lead, zinc, nickel, and aluminum. These are used in making paint, machines, tools, and other things used in our homes. Nickel and aluminum are not found in Norway, but are brought into the country to be refined because of the availability of hydro-electric power.

DO

1. Make a list of the minerals mined in Norway.
2. List the things in your home that are made of iron or steel.
3. List the ways that electricity is used in your community.

An Easter Holiday

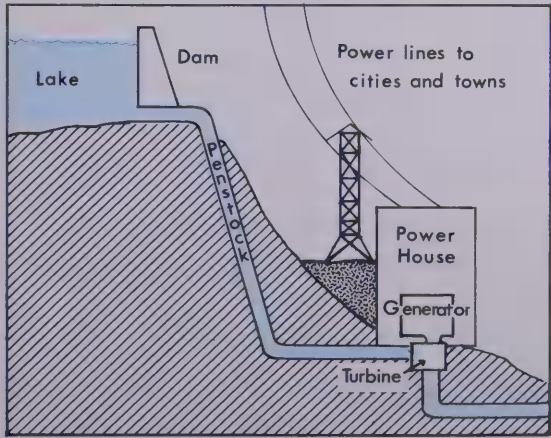
FACTORS

At Easter, Gunnar, Bestefar, and Bestemar took the electric train to Oslo, the capital city of Norway. On the way they spent a day at Rjukan, a small town in the south of Norway. Rjukan has a large hydro-electric plant to make electricity for its industries. In a little pamphlet telling about hydro-electricity in Norway, Gunnar found the table shown above.

DO

1. Which country (Figure 9) seems to have the most coal?
2. Which country would have the fewest fast-flowing rivers?
3. Which country makes the most hydro-electricity?

Figure 10. How electricity is made



Gunnar and Bestefar were taken on a tour of one of Rjukan's underground power stations. Gunnar learned that the water is stored in lakes high in the *fjeld* (high flat land) and let into the huge pipes, or penstocks, a little at a time. The penstocks drop the water onto great water wheels called turbines. These turn the generators which make the electric power.

In the past Norway depended upon agriculture, forestry, fishing, and trading to **earn** money. Norway has no coal or oil for making power. Now that she has learned to use the rushing rivers to make power, many manufacturing industries have been started.

Bestefar had told Gunnar that when he was younger many Norwegians had left Norway because there were no jobs. This is no longer true, as the new industries need men to run them.

DO

1. Which would be better for making hydro-electricity, a mountainous country or a flat one? Why?

2. How is the electricity made that is used in your community?

3. List the ways that the building of a sawmill near a small village might change the village.

Next Stop—Oslo

Bestefar was very proud of the progress Norway had made. Soon his country would be able to make all the iron and steel that it needed. It would not have to import any iron or steel.

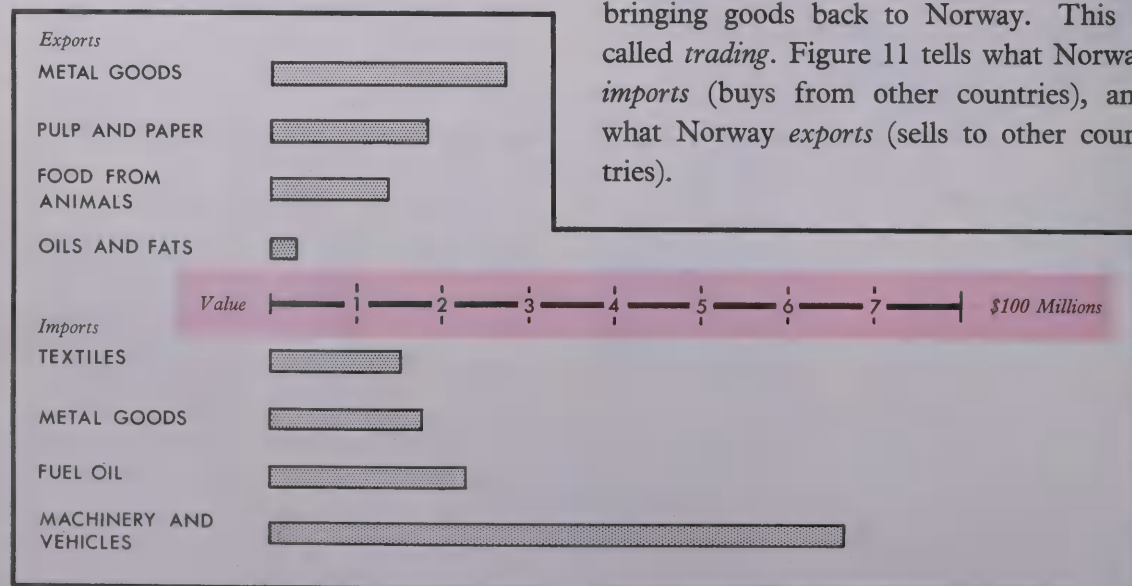
"The railroad and the new highways are all part of the new Norway," said Bestefar.

"When your father and mother were your age there were very few roads in Norway. We had no use for highways and railroads. Boats were used, and most people never left their own fiord. The many tourists that visit Norway each year, and the new industries, have made new highways and railroads necessary. Visitors must have transportation to see the beautiful scenery, and industries must have it to move goods and machinery."

Finally they arrived at Oslo.

Gunnar and Bestefar stopped to watch the many ships loading and unloading goods. These ships had travelled to many countries, taking goods with them and bringing goods back to Norway. This is called *trading*. Figure 11 tells what Norway *imports* (buys from other countries), and what Norway *exports* (sells to other countries).

Figure 11. Norway's imports and exports





The seaport of Oslo, capital city of Norway. An old fort, built at the beginning of the fourteenth century, can be seen in the foreground.

DO

1. What are Norway's two largest imports? (Figure 11.)
2. What are Norway's two largest exports?
3. What foods would Norway sell?
4. What sort of oil does Norway export?
5. Explain why Norway both imports and exports metal goods.

Home Again

In the spring Gunnar's visit with his grandparents came to an end. He travelled to Oslo once more, but this time he was going home to Montreal. As his plane began the flight back across the Atlantic

Ocean, Gunnar thought of a famous poem that Norwegian children learn in school:

*Norway, Norway*¹

Rising in blue from the sea's gray and green,
 Island's around like fledglings tender,
 Fiord-tongues with slender
 Tapering tips in silence,
 Norway, Norway.
 Houses and huts, not castles grand;
 Gentle or hard,
 Thee we guard, thee we guard,
 Thee, our future's fair land.

¹ Bjornstjerne Bjornson, *Scandinavian Classics*, Volume III (New York, the American-Scandinavian Foundation, 1915), p. 214.

SUMMARY QUESTIONS — 7

1. Much of Norway's western coast is north of the Arctic Circle. Why do the coastal and fiord waters not freeze?
2. Gunnar's grandfather is called a "farmer-fisher-man." Why?
3. What does Bestefar mean by "the new Norway"?

THE MAP SHOP

Maps that Show the Height of Land

Look at the map below. Notice the coloured lines. These lines help us to see the height of the land. They are called *contour lines*.

Look at the 500 on the first line inland from the water. The 500 tells us that every place along that line is 500 feet above the level of the sea. It is called the 500-foot contour line. 500 feet is about as high as twenty telephone poles, one on top of the other. If we travel from Althorp Point to the top of Mt. Royston, we will cross the 500-, 1000-, 1500-, 2000-, and 2500-foot contour lines.

DO

1. How high above sea level is Mt. Yorke?
2. In which direction does the stream on the south side of the island flow? Do you think it would be a fast or a slow flowing stream? Why?
3. What number would be on a contour line at sea level?
4. About how high above sea level is Lihou Lake?
5. What location would probably be the best for a forest ranger's cabin?

Map of Hardwicke Island, B.C.



Living on a River Delta



A COMMUNITY IN INDIA

With Shambhu in India

Shambhu is an Indian boy. He and his sister Mina live with their parents, Mr. and Mrs. Das, in a small village in West Bengal. West Bengal is a state in the country of India.

On the map on page 158 find Calcutta, the capital city of West Bengal. It is near the mouth of the Ganges River. To go there you would probably travel by plane, stopping at Montreal, New York, and Rome on the way. Show this route on a map. What other routes might you take?

To get to Shambhu's village from Calcutta one would travel south for about forty miles through the delta of the Ganges.

Delta Land

LAND

Most of West Bengal is a delta plain. Once under a shallow sea, it has been built up, in the Bay of Bengal, by two mighty rivers. The Ganges River and the Brahmaputra River meet the ocean there. Over many years these two rivers, flowing slowly towards the sea, have carried down much mud and sand, or *silt*, in their waters. On



meeting the ocean their waters slow still more. The silt, no longer carried by the current, sinks to the bottom.

Gradually the rivers block their own mouths in this way. They then make other channels round the land they have built up.

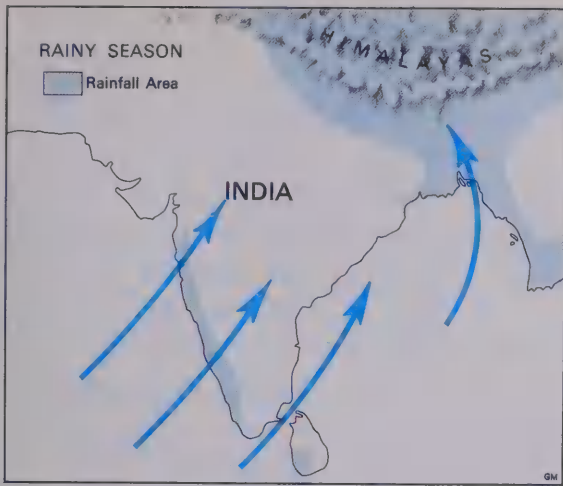
The land built up of silt is a low, fertile plain called a *delta*. Many streams and old river channels cross it. In times of heavy rains these flood their banks. Where the flood water first flows over the banks much silt is dropped from the water. This makes the land along the sides of the streams higher than the land behind it. The higher land is called a *levee*.

DO

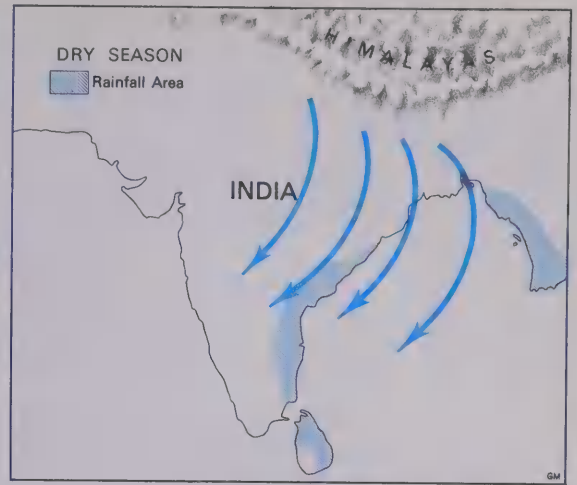
1. Tell why it might be 'good to live on a delta plain, and why it might not.
2. There are very few stones in the soils of a delta. Why is this?
3. Copy this chart into your notebook and complete it.

COMPARING COMMUNITIES

	OUR COMMUNITY	SHAMBHU'S COMMUNITY
The kind of community	?	?
The province	?	?
The country	?	?
The continent	?	?



(a)



(b)

Figure 1. Direction of winds over India in (a) rainy season, (b) dry season

The Monsoon

CLIMATE

Shambhu's father is a farmer. He grows rice on most of his land. Rice needs a hot, wet climate to grow. A wind called the *monsoon* brings heavy rain to India at the end of summer. Earlier — in March or April — there may be some heavy showers. But when the monsoons come, about the middle of June, it rains for days and days. Clouds are very dark and the rain falls heavily.

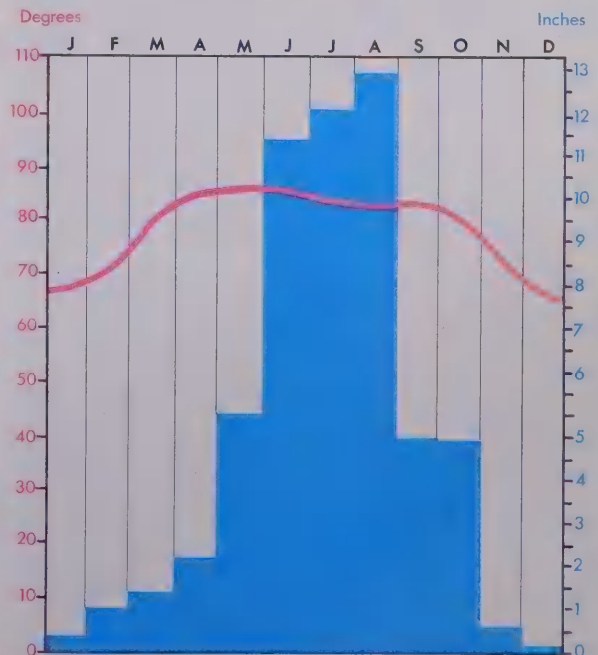
Winds blow over India from different directions at different times of the year. (See Figure 1.) For part of the year they blow from the land to the sea, and for part of the year from the sea to the land. Which are the winds that bring rain?

We can see from the climate graph (Figure 2) that West Bengal has really three seasons instead of four. There is a hot season, a rainy season, and a cool season.

DO

1. Using the chart, tell which months make up the cool season in West Bengal.
2. What is the hottest month of the year there?
3. Which are the four wettest months?

Figure 2. Monthly temperature and rainfall at Calcutta



The Village

In Shambhu's community the farm homes are clustered together in a village. Mr. Das's fields are tiny pieces of land scattered throughout the countryside around the village, and each day he walks out to them to cultivate his land. The village is close to a canal, and is joined to the main road along the canal by a narrow dirt track. On either side of the narrow village street are the homes of the villagers, each surrounded by trees and having its own garden, courtyard, and farm buildings.

Shambhu's house is near the canal. The house has a front garden in which vegetables and fruit — chillis, eggplant, green peppers, cabbage, spinach, mangoes, lemons — grow at all times of the year. There are tall palm trees all around the house, and fruit trees in the garden. A cowshed is at one side of the garden. Shambhu's family have two cows, two oxen, and two goats. From the cows and goats they obtain a little milk, and the oxen are used to pull the plow.

The main living quarters face the garden. The walls are of mud, built around a bamboo frame. The rooms are built on a platform raised slightly above the ground. They lead out onto a verandah, where Shambhu and his family spend much of their time at home. A thatched roof of rice stalks covers the house and verandah.

1. The main road near Shambhu's village
2. Track to village through a bamboo grove
3. Flooded rice fields around village
4. A vegetable garden in Shambu's village

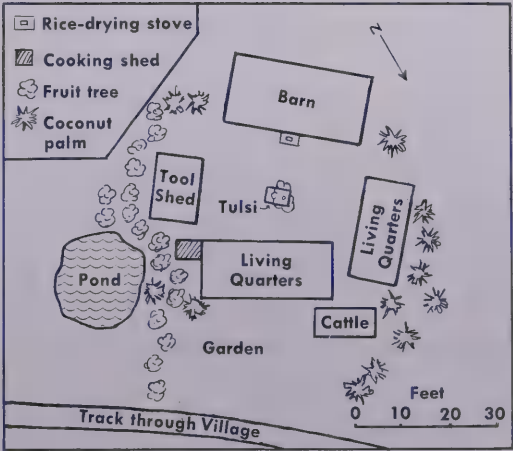
Shambhu's parents would like to build a new bedroom onto the house for themselves, when they have enough money. The new room will likely have brick walls and a tile or corrugated tin roof.

Behind the main living quarters is the courtyard. It has a cooking shed built on one side, with the family's water supply — a pond — behind it. Here the family do all their bathing and washing. Mrs. Das has to boil the water that is used for drinking because there are germs in it. On the opposite side of the courtyard are the grain storage barn and tool shed. The fourth side has a row of fruit trees and a bamboo grove.

Bamboo is very useful to Mr. Das in all sorts of ways, especially for building things. His palm and coconut trees are useful too. They provide food, and the leaves may be used for thatching, and for making Mrs. Das's brooms. Coconut fibre is used to make ropes.

On a platform in the middle of the courtyard is the holy tree, *Tulsi*, which is always planted in a Hindu (Indian) household. Here prayers are said each evening.

Figure 3. Plan of Shambhu's home



How are these buildings similar to those built in the Congo?

DO

1. Make a legend for Figure 3. Include the canal, road, front garden, courtyard, pond, mango and papaya trees, kitchen, grain storage shed, tool shed, coconut palms, platform in courtyard, cowshed.

2. Copy this chart in your notebook and complete it.

MATERIALS HOMES ARE MADE OF			
	SHAMBHU'S	LELE'S	EMANUEL'S
Roof	?	?	?
Walls	?	?	?

3. Use the scale on the map to find out how large the living quarters are. Is this bigger or smaller than your home?

4. Does the Das's home, buildings and yard, cover more or less than an acre? (An acre is about 209 ft. by 209 ft.)

The family water supply comes from a pond.





Plowing. Would machinery help Mr. Das?



Why must every piece of land be used to grow crops?

Land Troubles

FACTORS

Shambhu's father is always glad when the first rains come and he can start plowing. But he grumbles because his pieces of land are not together. "I waste half my day leading the bullocks from one plot to another," he complains. Some days, when the bullocks (oxen) are tired from walking, he has to carry the plow home himself!

Shambhu remembers his father telling him why the land is not in one piece. His great-grandfather had divided the land among his sons. Each son was given a piece of each kind of land so that one would not have all the good land and another all the poor land. It sounds fair, but the result was that each son inherited small pieces of widely scattered land.

Mr. Das has tried to improve matters. He bought the land of one of his brothers who went away to Calcutta to work in a factory. Also he asked an uncle to exchange a piece of land with him; but the uncle refused. Some farmers in other villages

have agreed to exchange land so that their farms are all in one piece. Few have money for buying land.

All of Mr. Das's small pieces of land total three acres. In addition, he rents two acres. The rented pieces are owned by a man who lives in Calcutta. The rent Mr. Das pays is half the crop he takes from this land. This is called share-cropping. Most of the farmers in Shambhu's village are share-croppers.

DO

1. What are Mr. Das's land troubles?
2. What is a share-cropper?
3. In share-cropping, the seed for next year's crop is taken out before the crop is divided between the owner and the tenant. Why is this done?
4. Compare the layout of farms in Shambhu's community with those in Canada. Which pattern is the more usual one in the communities you have studied so far?

Growing Rice

FACTORS

We have seen that because of the climate and the silty soil, the province that Shambhu lives in is ideal for growing rice. Rice is usually grown in standing water. If less than fifty inches of rain falls each year, a farmer must supply water to his rice crop or he will lose it. This is why rice is grown mostly on lowlands, where water collects and does not run off so easily. It also explains why the canal near Shambhu's village is such a blessing to the farmers. In years of not enough rainfall, the harvests used to be poor; but now the farmers can flood their fields with water from the canal. Mud banks called *bunds* are built around the rice plots to keep the water from running off.

After the first rains Mr. Das plows his rice fields. (They would be too dry and hard to plow before that.) Then he either sows his fields by throwing the seed over them, or plants the seed carefully in a well-manured, well-watered plot called a *nursery*. After about six weeks the strong, healthy young plants are dug up and carried out to the fields, which are now wet from the rains. The young rice plants are pushed down into the mud of the flooded field, six to twelve inches apart. This is back-breaking work, and Shambhu and his mother may help Mr. Das in order to get it all done at the right time.

Even after the hard work of planting, Mr. Das must give his rice fields a great deal of attention. Weeds grow quickly, stealing much of the plant food needed by the crop. Mr. Das pulls up the weeds by



What work are these people doing?

hand. He must fill in holes dug in the bunds by muskrats. Towards harvest time he must put up scarecrows to keep swallows, blackbirds, and cranes from attacking the ripening grain. Sometimes the villagers take turns guarding the ripening fields of rice. They stand on a high platform built of bamboo, and frighten away the birds and animals.

Rice seedlings are planted in the flooded fields.





A canal near Shambhu's village

Rice planted in June is ready for harvesting from September to November, depending on the soil, the weather, and the variety of rice. Harvest is an anxious as well as a happy time for Mr. Das. He must hurry to get the crop in, because each day the hungry birds and animals eat more of the grain. Also rain could spoil the crop at the last moment. As at planting time, Mr. Das works from dawn to dusk. He cuts the tall stalks of rice with a small sickle. The village school closes

Can you suggest how the tool in this picture could be used to pound rice?



at this time so that children can help their parents to cut the rice and load it on the ox-cart.

When the crop is in, the rice must be taken out of the husk and made ready for eating. Mrs. Das and the other village women pound the rice with a hand-made stone tool to separate the grain from the husks. The rice grain is then stored in the family's large raised rice barn. The rice stalks are stacked in a corner of the courtyard, to be used for cattle fodder or for mending the thatched roofs. Nothing is wasted.

Sometimes rice is sent to a mill to be husked and polished. Shambhu has read in his health book at school that hand-pounded rice has more vitamins than milled rice. His father says that this is a good thing, since they cannot afford to eat milled rice.

Because rice is so important to the Bengalis, there is a thanksgiving festival after the harvest. On this day the people first thank God for the crop, and then eat rice from the new crop. Where we pray for "daily bread," a Bengali father prays, "Let my children have rice and milk."

DO

1. Explain how rice may be planted.
 2. What care must be given to the rice crop?
 3. How much rain is needed to grow a rice crop?
 4. Why is the rice stored in a raised barn?
-

More than One Crop a Year

FACTORS

As many as three crops of rice can be grown in a year in some places in West Bengal. The second crop, planted in November, is harvested in January. A third crop, planted in February and harvested in May, can be taken only in the very best areas, and with the help of irrigation and fertilizers.

In Shambhu's community only one crop of rice is grown each year. There is a second crop, called *dal*, which is usually peas or lentils. (Lentils, which have pods like peas and beans, are very common in Europe and Asia.) This second crop is usually watered from the canal.

In order to put some plant food back into the soil, Mr. Das may leave the rice stalks on the land and plow them into the soil. Another way he fertilizes some of his fields is to let the muddy canal water flow over them. The water in the canal is muddy because of the silt it carries. When this water is allowed to run over the farmers' fields it deposits a rich layer of new soil. The water is pumped into the fields next to the canal, and channelled into other fields by breaks made in the bunds.

Although he keeps two cows, two oxen, and two goats, Mr. Das does not use



How does irrigation help control the amount of water on the fields? In this picture the canal can be seen behind the disused hut.

manure for fertilizer. Wood is scarce in the village, and so manure is dried and used as fuel rather than as a fertilizer.

In some of the villages close by, factory-made fertilizers are being used on the farms. Mr. Das hopes that some day he may be able to afford some of this.

DO

1. Compare the way Indian and Canadian farmers fertilize their fields.
2. Compare planting and harvest times in India (see chart below) and Canada. Why are they different?
3. In Canada, farms that grow only wheat must be very large. Why is this?
4. On which farm (Canadian wheat farm or farm like Mr. Das's in India) would very large machinery likely be used?

PLANTING AND HARVEST TIMES FOR A 3-CROP SYSTEM

Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
Second crop harvested		Third crop planted			First crop planted		First crop harvested				Second crop planted	



How is Shambhu's school building suited to the climate?



The children in Shambhu's village have free schooling up to the age of twelve.

Shambhu

FACTORS

Shambhu is ten years old. With his younger sister Mina he goes to school. The school is a one-room building with white brick walls and a corrugated iron roof. There are only twelve students. They sit on the floor on mats. They have text-books and wood-framed slates for written work. Paper is very expensive, so very little is used in the village primary school. Shambhu started to read and write in Bengali when he was four. Now he is studying arithmetic, history, and geography. When he goes to high school he will learn English and Hindi.

The teacher, Mr. Sen, comes from the next village. There the primary school is bigger, with three rooms, desks, and chairs. That school was the gift of a wealthy man who owned much of the village land.

Shambhu and Mina are at school from ten to three-thirty each day. They get up quite early, have breakfast of home-made rice crispies, milk, and bananas; then practise hand-writing or look after their baby brother while Mrs. Das does the housework. Around nine they bathe and change into school clothes. Most days Shambhu wears only a clean pair of shorts, although in winter he also wears a shirt

and sleeveless pullover. Mina wears a dress. When she is twelve she will wear a *saree* like her mother. Their baby brother, who is one year old, most of the time does not wear anything.

The children eat their lunch before going to school. For an afternoon snack at school they take some sweets made of nuts or coconut.

The government pays for everything in Shambhu's school, but after he is twelve his father must pay his school expenses. Many boys and girls do not go to school after the age of twelve for this reason. Many of them go to work on the farms at this age.

The farm chores of the children are usually different from those of their parents. It is the children's duty to look after the cattle. Because there are so many people in India to feed, every available piece of land must be used for growing crops. Cattle usually graze on the sides of the roads and tracks. As there are no fences, the children must see that they do not eat the growing crops. After the crops are harvested the cattle may be allowed to graze on the stubble. Shambhu loves to look after the cattle because it gives him a chance to play with his friends in the open air. They play hide and seek, fly kites, and sometimes fish with rod and line in the ditches alongside the road.

Shambhu's best friend is Ram, the potter's son. Ram helps his father collect clay, and is also learning to make pots. Shambhu sometimes finds him making the clay balls for his father who turns them

into flower pots. Ram's mother tends the stove, or kiln, where the pots are burned after being dried in the sun. After the pots have been fired in the kiln Ram's father paints them by hand. Someday Ram will be a potter like his father. Trades in India usually pass from father to son.

Sometimes the boys go to Mr. Mitra's house at the very end of the village, to listen to the radio. Mr. Mitra has a little workshop in which he repairs all sorts of small mechanical gadgets such as clocks, watches, and radios. He learned to do this in the Air Force. Mr. Sen, Shambhu's teacher, says that radios are cheaper now than ever before.

On the way they pass the local *Jamindar's* (landowner's) house, a place with many

A potter at work, making a flower pot on his potter's wheel.



wings and courtyards. Shambhu has heard his father say that this family at one time owned about 200 villages, and all the village lands. But the Jamindars in Bengal have had to give up most of their lands. Only one wing of the palace is in good condition now. It is the property of the head of the family, who is a judge in Calcutta. Just beyond the palace is a temple which was built by the family. It is used by the villagers as a place of worship.

Shambhu and Ram like to play near the boats moored in the canal. In some years, when floods are bad, the only way to get about is by boat. One day when the boys were playing along the canal bank they found some men digging a well. They learned that the government is having wells like this dug to provide a safe drinking-water supply for the village.

Often the boys go to look at the high school on the main road. It is a large modern building, with large windows. Inside there are new desks and large black-

boards. Outside there is a big playground where the boys sometimes see games of soccer or basketball being played. They dream of going to this school some day.

DO

1. Copy these charts into your notebook and complete them.

A. MATERIALS USED BY STUDENTS

IN OUR SCHOOL	IN SHAMBHU'S SCHOOL
?	?

B. COMPARING BUILDINGS

	OUR SCHOOL	SHAMBHU'S SCHOOL
Roof made of	?	?
Walls made of	?	?
Furniture made of	?	?

2. Why do many Indian children go no further than Grade Six in school?

3. How do boys learn a trade in India?

4. What chores are the children in the village expected to do?



One wing of the local landowner's house. The temple is on the left.

Mother's Work

FACTORS
▼▼▼

Shambhu's mother, Mrs. Das, gets up early in the morning, usually about six o'clock. She dresses in her saree, and then washes her night clothes in the family pond and hangs them out to dry. Indians usually wash their clothes twice a day because it is so hot and they perspire.

For breakfast Mrs. Das serves home-made rice crispies (made like popcorn), milk from the cows or goats, and bananas. Sometimes she serves *roti*, a kind of home-made bread that looks something like a pancake and is eaten with molasses or curry. On other mornings the family must settle for left-over rice, soaked in water and eaten with curry.

After breakfast Mrs. Das cleans and dusts the house and sweeps out the courtyard. Then she goes over the floors of the house with a clay-and-water paste. This keeps the floors firm and smooth.

Right after her cleaning Mrs. Das begins to cook lunch, because the children eat their lunch before going to school. She cooks rice, fish, dal, and some vegetables from her kitchen garden — usually leafy green vegetables such as spinach. The meal is often flavoured with spices. Mrs. Das has two stoves in her kitchen for cooking, and another one in the courtyard. The stove in the courtyard is for boiling grain and for boiling clothes. Each stove is a small clay box built on the ground. Cooking-pots fit into three holes in the top. At the side there is an opening for putting in coal. Most stoves in the village use coal as fuel. To get the coal fire going,



Mother repairs and smooths the mud walls before winter comes. How does your family prepare your home for winter?

dried cow-dung (manure), is used. This lights very easily and keeps the fire going until the coal catches light. At first the fire makes a lot of smoke.

An Indian woman cooks on a stove made of baked clay. List the kitchen equipment she works with.



Sometimes Mother cooks enough rice, fish, dal, and vegetables to do for supper as well as lunch, as the two meals are similar. Bengalis are not very fond of breads. They love to eat rice and fish. Fish is the favourite dish in this part of India. It is usually fresh water fish, such as trout or smelt. With so much water about, fish is abundant. Small fish live even in the rice fields when they are flooded. Most days Shambhu or Mina may catch a few in the canal or pond. Father sometimes brings in fish from the field for the evening meal.

Mrs. Das cooks rice in round, narrow-mouthed clay pots called *hari*. These pots are easy to clean, and can be thrown away after being used for a while. Drinking water is carried and stored in tall brass pots with long narrow necks. Meals are usually served on big brass plates, much bigger than the dinner plates we use. Metal bowls and tumblers hold the family's

drinks. Aluminum pots and pans are new to Indian households, although they are not too expensive. Glass and china are hardly ever used in the village.

After lunch Shambhu's mother washes the dirty dishes at the pond, scrubbing them with clay to clean them. After this she has a few free hours. Some days she goes to visit friends, taking the baby and her sewing. On other days, ladies come to visit her. Sewing usually means making a quilt, called a *kantha*, out of old clothes. Mother sews the pieces together until they are thick enough to give some warmth. Then she decorates the *kantha* with old saree borders, which are usually colourful and prettily embroidered. *Kanthas* are used instead of blankets in winter, and are also used for mattresses. They are gay and inexpensive, and give Mrs. Das a chance to be artistic. Small-size *kanthas* are made for babies and are often given as shower gifts.

After her free hours in the middle of the day, Mother may do the laundry. She boils the clothes with soap in a big pot, then takes them to the pond and beats them hard on a stepping-stone. She may starch the clothes with the water from cooked rice, but she does not iron them. It is quite unusual to wear ironed clothes in the village.

Also in the afternoon Mother may go to the grocery store. This is nothing like a Canadian grocery store. It does not keep milk or fresh vegetables. But it keeps a wide variety of goods, ranging from safety-pins to sarees. Mother usually buys dal,

The stove in the courtyard



flour, cooking oil, matches, fuel oil, spices, and soap there.

The owner of the grocery shop is an old man who used to be quite poor. People who are jealous of his success say he got his money by being a bandit chief in his early days. The old man is about 100 years old now. He is very proud of the hard work he has done in order to get his grocer's shop and to bring up and educate his sons. He now has a two-storey brick house, his shop, and a lot of good rice land.

After coming home from the shop Mother cleans the house again. Then she cleans all the lamps and gets them ready for use in the evening. At dusk she lights them all, then takes a small clay lamp to the holy tree in the courtyard. Bowing to the ground, she prays for the whole family. The children join her in the prayers.

Soon after this father comes home. While the children sit around a kerosene



Inside the village store

lamp and study, father and mother for the first time in the day have a chance to sit and talk. The evening meal is usually served between eight and nine o'clock, and everyone is in bed by ten.

HOW MOTHER SPENDS HER DAY

6 a.m.	Gets out of bed
	Changes her clothes and washes
7 a.m.	Gets breakfast ready
8 a.m.	Does the housework
9 a.m.	Lunch
10 a.m.	
11 a.m.	Visits neighbours
12 noon	Sews
1 p.m.	
2 p.m.	Laundry
3 p.m.	
4 p.m.	Shopping
5 p.m.	
6 p.m.	Cleans house
7 p.m.	
8 p.m.	Prayers
9 p.m.	Evening meal
10 p.m.	Bedtime

DO

1. Make a chart to show how you spend your day.
2. List the jobs that Shambhu's mother has to do.
3. What modern inventions could make Mrs. Das's work easier?
4. List the foods that the Das family eats in one day. Compare this list with the list of foods that your family eats in one day. Which foods that the Das family eats are not produced in your community?
5. Of what materials are the utensils in your home made?

Preparing a field for planting. How would this be done in Canada?



Father's Work

FACTORS

During the planting and the harvest seasons Mr. Das may work in the fields from dawn to dusk. It is not pleasant to work in the heat and the mud, but Mr. Das and the other men of the village are used to it. Mr. Das helped his father in the fields when he was Shambhu's age, because there was no school for him to go to. Now Shambhu helps his father in the fields only at the busiest times.

Mr. Das never wears a shirt in the field, and seldom at other times. He has one piece of clothing which he wraps around himself to make baggy trousers. This is called a *dhoti*. He also has a piece of cloth, four feet by three feet in size, which serves as towel, turban, or mat as the need arises. It is his *gamcha*. If he has time at midday, after his lunch of rice with dal, fish, and vegetables which Mrs. Das brings to him in the field, he spreads his *gamcha* out in

a patch of shade and has a nap. Some days he must keep right on working. In winter he wears a shawl called a *chadar*.

Some days Mr. Das does not have to go out into the fields, but he still gets up early. He cleans out the cowshed and works in the vegetable garden. In the middle of the morning he walks into the village. Sometimes he attends the *pan-chayat* or village council which meets at a platform built around a big banyan tree. Here the problems of the village and of the local farmers are discussed. Or Mr. Das may make one of his regular visits to the village social worker. The main job of the social worker is to teach the farmers better ways of farming. Mr. Das has followed some of his suggestions with excellent results, and now visits him regularly, sometimes just to talk, and sometimes to get more information. Because he did not get an education in school, Mr. Das cannot

This picture shows the carrier on which Mr. Das loads his produce for market.



read. He must depend on what people like the social worker can tell him about better farming methods.

Sometimes Mr. Das does jobs for other people — a little roof-repairing or house-building — to make a little extra money. Sometimes he is just returning one good turn for another, and gets no money.

On the village market day he takes vegetables and fruit to market, carrying them on a platform built over the two rear wheels of his bicycle. Most villages have a market once a week. Livestock, fresh food, and dry goods are bought and sold. Sometimes city folk come to the village markets for their supplies.

DO

1. List the jobs that Shambhu's father does.
 2. What improvements have come to the village since Mr. Das was a boy?
 3. Why does Mr. Das wish to talk often to the village social worker?
-

Going to Market

FACTORS
▼▼

Sometimes Mr. Das takes his produce to Canning, a town about six miles away, where goods are collected to be sent to Calcutta by train.

In all cities of India, families have to buy their food fresh each day. (Only the rich people have refrigerators.) Of course, the freshest food always gets the best price.

The markets in Calcutta open at 7 A.M. This means that the train from Canning must leave no later than 6.00 A.M. with its load of fresh food from the country. If Mr. Das wants to sell to the early-morning buyers at Canning, he has to start off from home on his bicycle before sunrise.

Sometimes, if it is not a school day and Father does not have too big a load, Shambhu and Mina go with him, riding on the back of the carrier. The children enjoy this very much. While Father sells his load, they look at the shops and the people. They like to watch fishermen keeping their catch alive. The fish are carried in clay water-pots hung from a



Boats on the river at Canning. One carries a load of rice stalks.

bamboo pole. This the fisherman continually shakes, in order to keep the fish breathing for as long as possible.

With the money he gets in Canning from selling his goods, Mr. Das usually buys a piece of lamb, or some sweets, as a treat for the family. Mutton or lamb is the only meat that most Hindus eat. They never eat beef because cattle are considered by them to be sacred animals.

On some of the religious holidays there are big fairs held in Canning. You can imagine what fun the children have. There are merry-go-rounds, horse rides, fancy food, and movies. Mr. Das has a hard time getting the children back home on these days.

DO

1. What products would Mr. Das probably take to market?
2. Why does Mr. Das not take his produce to Calcutta himself?
3. Why do the fishermen try to keep their fish alive as long as possible?

City Dwellers

FACTORS
▼▼

Once or twice a year Mr. Das goes to Calcutta. He goes alone, and is always glad to get back to the quiet of his village. He goes to report to Mr. Roy, the man who owns the two acres of land that Mr. Das rents. Father always takes along a little present for the Roys — some pickles, fruit, vegetables, or fish — and the Roys always send back something with him for the children.

The two families have very little in common. You might say that they live in two different worlds. Mr. Roy is rather like a Canadian businessman. He wears a suit and tie, and lives in a two-storey brick house with electricity, piped water, and other modern conveniences. Each day he drives his car to work in the office of a publishing company. Mrs. Roy goes out each day to teach in the university. Their daughter goes off in the school bus each morning also, dressed in her neat school uniform.

Sometimes the Roys go down to Shambhu's village to look at their land. It takes them about an hour and a half in their car. As they leave the city the traffic is very heavy. At the edge of the city there is a great deal of new construction, as homes and several new factories are being built. A little way out there is an experimental farm. The government and other groups are trying to develop these all over the country.

As the Roys drive farther out from Calcutta, traffic thins out. They see only occasional buses, trucks, and cars. Some-

times they see an ox cart slowly carrying a load to a village market. It is very pleasant driving through the countryside, especially after planting, when everything is a bright green.

The Roys cannot drive their car right into the village. They must leave it on the main road, and walk the rest of the way along the narrow dirt track. In the hot season this track is very dusty. In the monsoon it is deep in mud. After the Roys leave their car many children — and some grownups too — gather around the car to admire it.

On this day everyone in the Das household is very excited. Mina and her mother tidy up and make arrangements for tea. Mats are laid out on the verandah for the guests to sit on. Mr. Das takes his guests around the village, and to look over the fields and farm equipment. Mr. Roy enjoys the chance to stand around talking about next year's crops.

The Roys usually do a little shopping in the village, too. They buy flower pots from Ram's father, and sometimes Mrs. Roy gets an iron frying-pan from the village blacksmith. Mr. Roy says that much of the best workmanship today is to be found in the villages.

Because she does not have much time for sewing, Mrs. Roy usually asks Shambhu's mother to make some kanthas for her. She brings the old clothes with her, and also pays Mrs. Das for her time. She also pays Mrs. Das for making pickles and dried foods for her.

After tea, but before it gets dark, the



Why would Mr. Roy not want to drive along this road at night?

Roys say goodbye. There are no lights along the highway, so they like to drive home in daylight. It is hard for Shambhu and Mina to settle down to homework after the excitement of the visit from the Roys and their car!

DO

- 1. Why must Mr. Das sometimes make a trip to Calcutta?
- 2. Why does the Roy family visit the village?
- 3. Why is there not a motor road into the village?
- 4. Copy this chart in your notebook and complete it.

COMPARING COMMUNITIES		
	CALCUTTA	THE VILLAGE
Roads	?	?
Buildings	?	?
Traffic	?	?
Jobs	?	?

SUMMARY QUESTIONS — 8

1. Why does change come slowly in Shambhu's village?
2. Name an important fact about the *land* in West Bengal.
3. What is the outstanding feature of the *climate* there?
4. Why is rice important to the people of the Ganges delta?

THE MAP SHOP

Map makers use maps to tell us different kinds of information. If they want to show us how many people live in a place, they may use a population map. We can make a population map for the schools in Mina and Shambhu's village schools. On population maps black dots usually stand for a certain number of people. Look at this school population map and then answer the questions.

VILLAGE SCHOOL

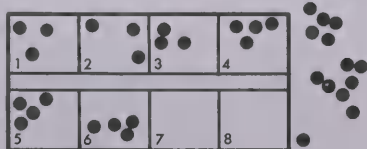
Each ● stands for two pupils.



1. How many pupils are in the school?
2. How many pupils are outside the school?
3. How many pupils are there altogether?

HIGH SCHOOL

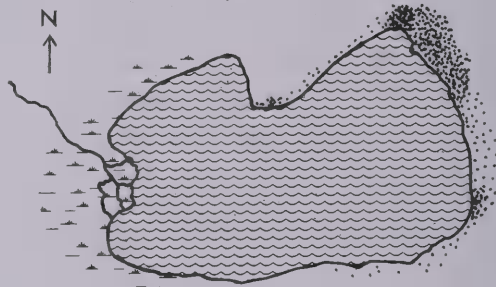
Each ● stands for ten students.



1. How many students are in classroom 1?
2. How many pupils are on the playground?
3. Where are most of the pupils?

Sometimes the dots are so close together that we cannot count the exact number. From these maps we just get a pattern.

Each · stands for one person.



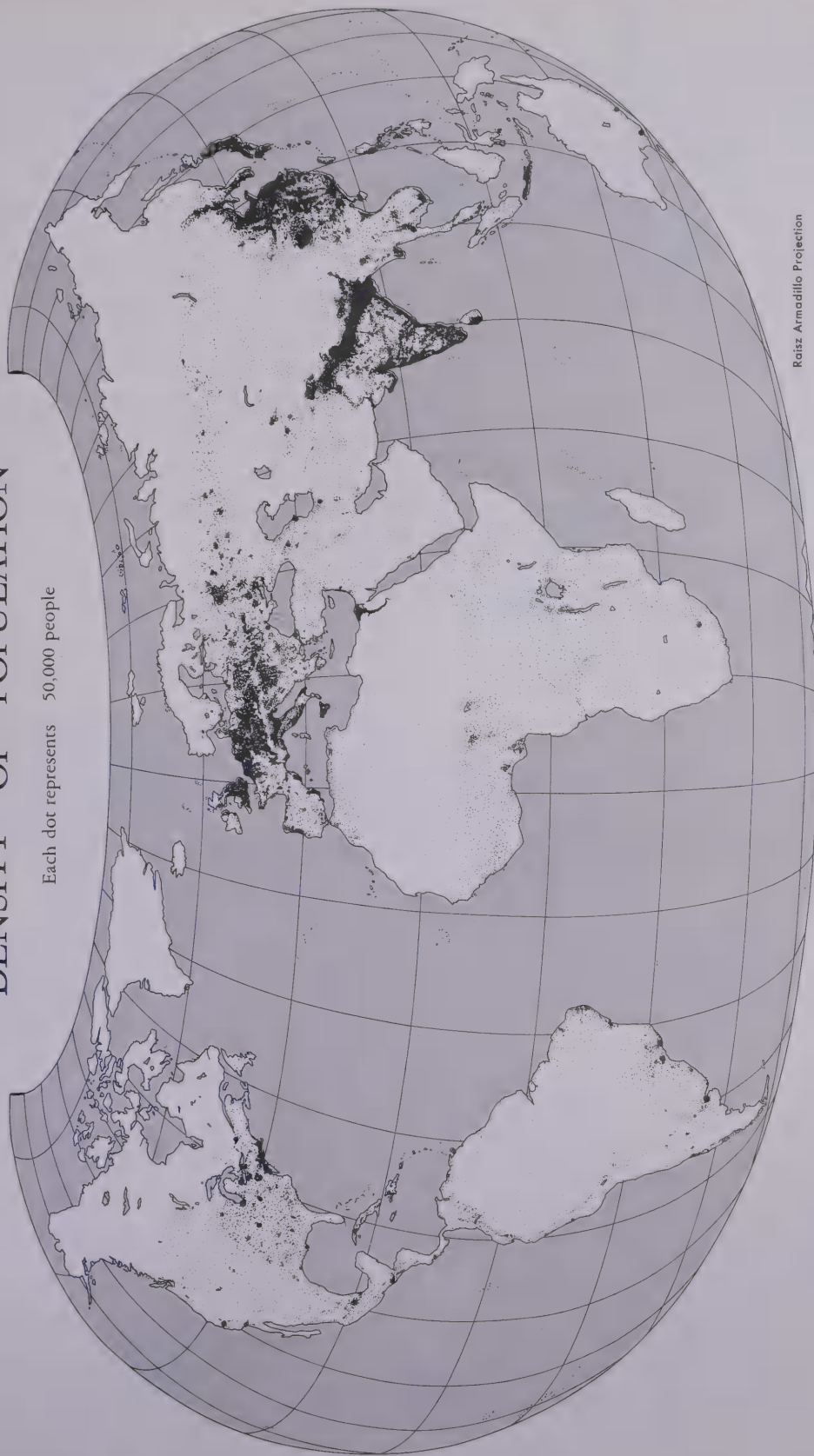
1. On which side of the lake do most people live?
2. On which side of the lake do no people live? Why?

The map opposite is a population map of the world.

1. Where do most people live, north or south of the equator?
2. Which countries that we have studied have the greatest number of people? the fewest?
3. Where do most of the people of India live? (Along the coast? In the east? In the north? In the south?)

DENSITY OF POPULATION

Each dot represents 50,000 people

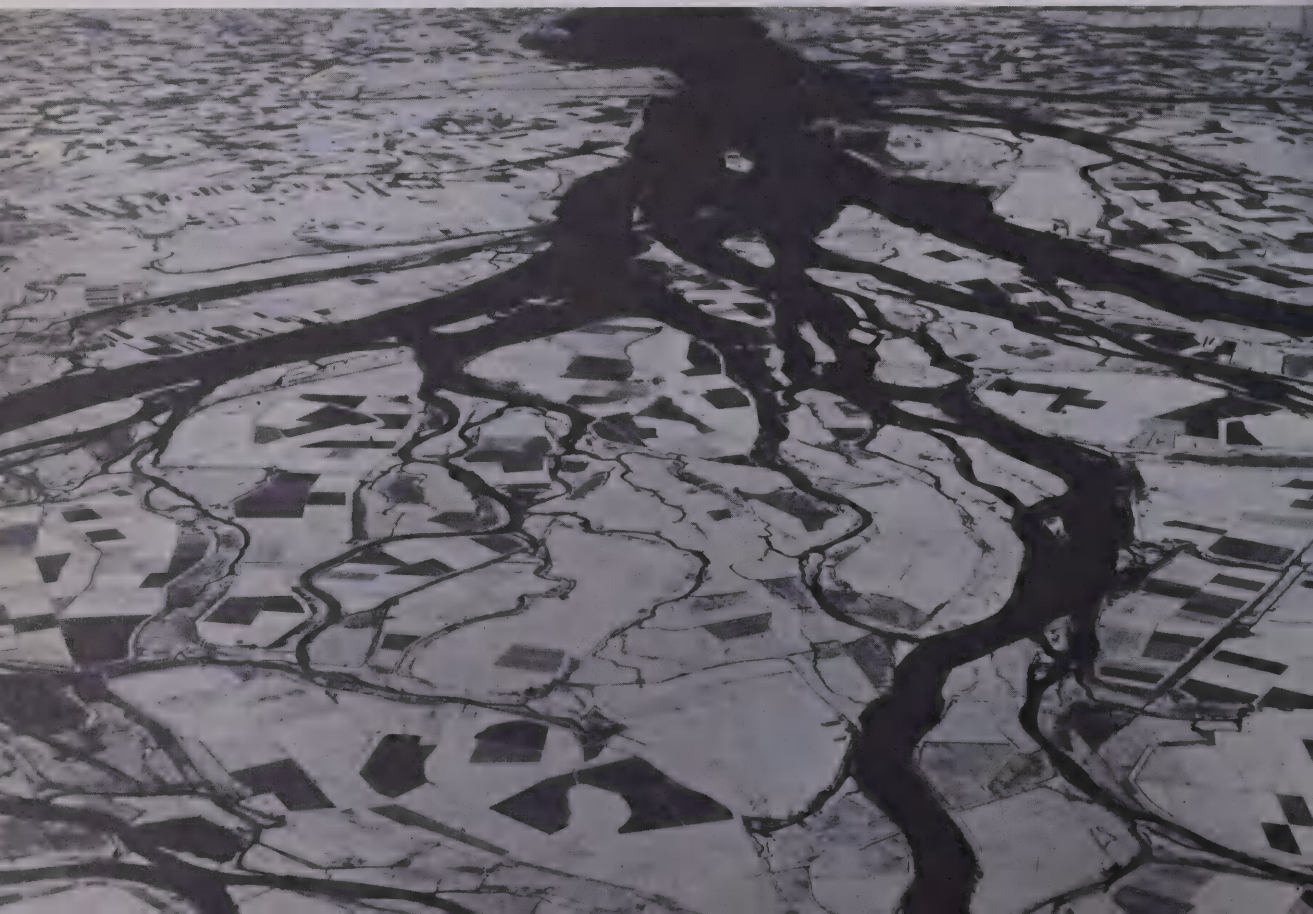


Raiz Arnadillo Projection



Map of Europe showing the location of the Netherlands (shaded area). Several important European cities are shown on the map by a dot and initial letter. Can you identify them?

The planted fields look like patches in this air view of a part of the Netherlands on the Rhine and Meuse river delta.



VISITING THE NETHERLANDS

Just a Dot on the Map

Dirk and Anneke Himpers would probably be a little angry if they read the words "Just a Dot on the Map" and knew it meant their own country, the Netherlands. For the history of the Netherlands is remarkable. This tiny country has done great deeds. The land was poor; the Dutch made it rich. The wind tried to blow away the soil in one place; the Dutch used the wind to make new land in another. The North Sea tried to steal the land; the Dutch pushed the sea back and made new land. Today over a third of the Netherlands is below sea level.

Let us find this "dot on the map." Look at the map of Europe on page 178. The Netherlands is the shaded land area.

Just as Peru is in South America and Canada is in North America, so too the Netherlands belongs to a continent. The usual name for the continent is Europe, although some people might say Eurasia. Both are correct. We will use the name Europe, since the Netherlands and its neighbours are in the European part of Eurasia. Notice that the Dutch people live on the West coast of Europe. They live at the mouth of a large river, the Rhine. The neighbours of the Netherlands are not shown on the map, but you will find their names on the map on page 181.

The Netherlands is a small country. Let us compare it with part of Canada. Canada's province of Nova Scotia is almost twice as big as the Netherlands.

Living on the coast and at the mouth of the Rhine river has affected the lives of the Dutch people. From early times they have been good sailors and traders. Barges chug up and down the Rhine, carrying goods of all kinds to and from far-away countries. These barges are not suitable for use on the open sea. The Dutch have built large ocean-going ships and have constructed safe harbours and docks so that goods can be transferred from barge to ship and ship to barge.

DO

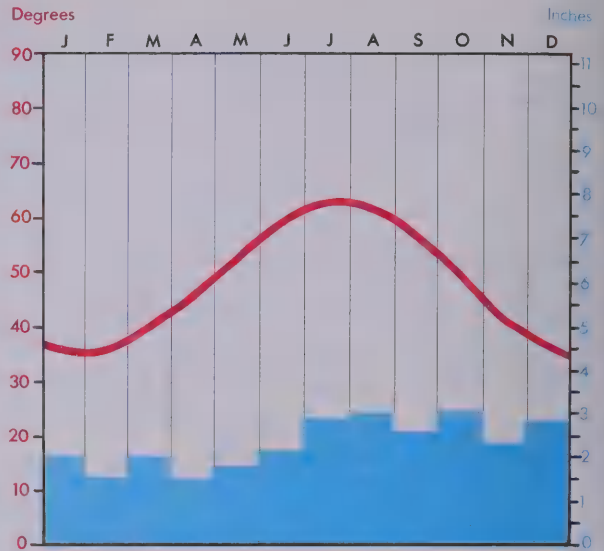
1. Copy the following chart into your notebook and complete it.

COMPARING HOMELANDS

	COUNTRY	CONTINENT
Ours	?	?
Dirk and Anneke's	?	?

2. List the Netherlands' neighbours.
3. List the large bodies of water near the Netherlands.
4. List the rivers that flow through the Netherlands.

Figure 1. Temperature and rainfall in one year at Amsterdam



The Netherlands' Weather

CLIMATE

Dirk and Anneke's land is quite far north. Canadians might think that the Netherlands would have long cold winters. They might be surprised to learn that the Dutch winters are much milder than those in many parts of Canada. This is for the same reason that Norway's winters are milder than ours. Do you remember what that is? (If you have forgotten, look back to page 140.) Dutch winters are so mild that the boys and girls in the Netherlands cannot skate every winter. When they do skate, they often skate for miles along ditches and canals.

Look at the bar graph showing the temperature and rainfall in Amsterdam (Figure 1).

DO

1. In Amsterdam, which month is the warmest?
2. Which month is the coolest?
3. Which months would be the summer season?
4. Which month has the most rain?
5. Is this more or less than the rain for this month in your community?



If the winter is cold enough, Dutch people may skate on the many canals.

Figure 2. Land gained from the sea



Small Land — Many People

LAND

Eleven and a half million people live in the Netherlands. All through the story of the world, many countries have become crowded. The Dutch needed more land. They fought the sea for it. Their land was flat and the sea was shallow. The sea was pushed back and new land was won. Dikes were built and behind them land which was once under water was drained to make fields for grain and cattle. Such drained land is called *polder land*. Old polders were drained by pumps powered by wind mills. Today electric pumps make it possible to drain badly-needed new polder land. The land is precious and the Dutch do not waste any of it.

The land is flat, with hills in the east. Along the coast there are sand dunes. Where there are no sand dunes the Dutch have built dikes to keep out the sea.

Figure 2 shows where the Dutch have won land from the sea or from lakes.

DO

1. Where has most of the land been won, in the east or in the west?
2. What can you tell about the land in the eastern Netherlands?
3. Why do Canadians not drain lakes and make new farm land?
4. How many people live in Canada?

Small tulip fields are separated by wide ditches (dark areas in photograph). How would farmers get to their fields?





Many older homes had the barn and house under one roof.

An old village. What are the buildings shown here?



The Letter

Dirk and Anneke Himpers lived on a farm in the northern Netherlands. Many people call the Netherlands "Holland," a name which really means "hollow land" and describes the lowland along the coast. The word Netherlands means "low lands" and refers to the whole country.

Mr. Himpers was a good farmer. His farm though, was an old one. The buildings did not have modern equipment. The one-roomed house looked old-fashioned beside the new farmhouses. Dirk and Anneke were soon going to need rooms of their own.

Father talked over these problems with Mother. They decided they would apply for a farm on the new Northeast Polder. It would not be easy to get. Only one farmer out of every four hundred who applied was chosen to move. They could not buy the land; it belonged to the government. The farmers who were chosen would rent the land.

Soon after the letter of application had been sent, an inspector came to see them. He asked a great many questions. Had the family ever lived in a house with separate rooms? Could they change to modern ways? He checked the cows to see if they were in good health and the farm buildings to see if they were well-cared for. He checked Mother's house-keeping, and even noticed the tidy line-up of wooden shoes on the front stoop. (No one ever wears wooden shoes inside the house. They are worn outdoors in country where the land is often wet.)

The inspector finished talking to Mother and Father and then left without saying a word.

Some time later a very official-looking letter arrived. Everyone sat down quietly while father opened the letter. Then he read aloud.

Dear Mr. Himpers,

This is to notify you that your request for a farm on the Northeast Polder has been granted . . .

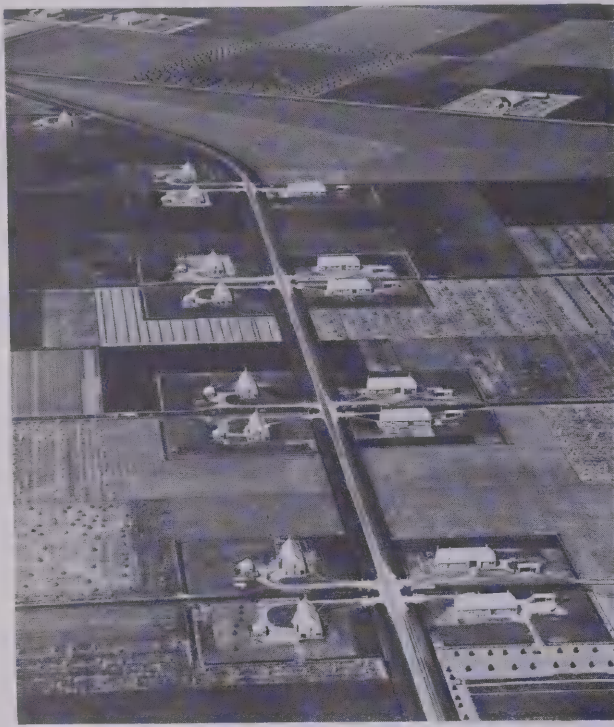
The letter said much more, but the important part had been read. They were going to move!

DO

1. What is the correct name for Dirk and Anneke's country?
 2. What were the family's reasons for moving?
 3. Why would the government not sell the polder land?
 4. How were farmers for the polder chosen?
-

The inside of an old farm home





Farms on the Northeast Polder. Compare with the old polder shown on page 181.

New Communities

FACTORS

Over a period of years, all the farms on the Northeast Polder had become ready for farming.

In one part four sets of farm buildings were built around the intersection of two roads. Here the farmers would have neighbours close by. In another part the farms were built with farm houses facing one another along the road. A wide water-filled ditch ran along the side of the road and around each farm. From above, the land looked like a checkerboard; even



the buildings looked like red checkers with their red bricks and red roofs.

The family travelled into the polder from Kampen, through the village of Ens, and then to their farm which was between Ens and Emmeloord.

DO

1. On the map on page 184 trace the Himpers' route.
2. What are the blue lines on the map?
3. What do you notice about the roads?
4. How can you tell that the land must be very flat?
5. What kinds of transportation could be used on the polder?
6. What activities would there be for tourists on the polder?

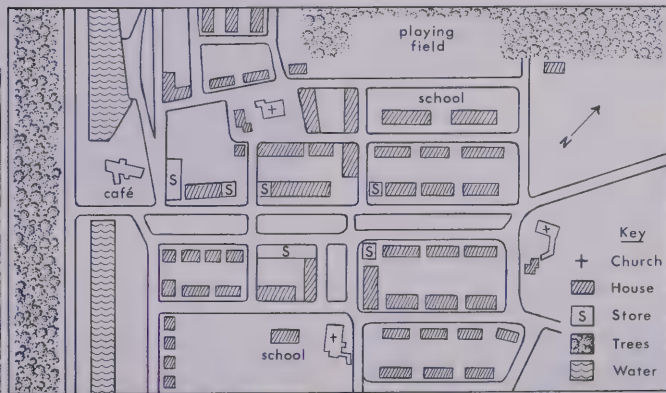
Ens

As they drove through the village of Ens they noticed the modern buildings. They saw their country's flag flying over the school. The family stopped at the café for dinner, and Mother was glad to see the tower of a pretty new church.

DO

1. Which side of Ens did the family pass through?
2. Could mother have seen the church from the highway?
3. What would be the purpose of tree plantings?
4. How many stores are there in Ens?
5. What kind of stores do you think they would be? Why?

Figure 3. Village plan of Ens. Below, a photograph of Ens when completed



The village was small, and soon the family were on the way to their farm.

"How shall we know our farm?" Anneke asked.

"By the red roof on the barn," said Father, winking at Dirk. They all laughed at Father's joke — for all the barns had red roofs.

"I shall give you one clue," said Father then. "I was able to get two beautiful maple trees from Canada. Let us see who sees them first."

The game was on! They passed two farms, one a two-storey building with a roof of red tile, and a smaller farm consisting of a house and barn joined in one building. They saw other farms. Some had long houses, but most were shaped like the letter L. Having house and barn joined in one building helped to save space. The barnyard could be small, and this helped save land for more important uses. Every farm had some flowers and a small tree or two.

The Farm

FACTORS
▼

Just as they came to an intersection Anneke saw the trees. "There they are! There is our house." The old rented car crossed a bridge over the wide ditch and then stopped. No one moved. Not a word was spoken.

The house had two storeys. The roof, of course, was red tile. The walls were made of brick. The barn had been prefabricated, that is, the parts had been made in a factory and then brought here and put together.



The whole family rushed into the new house. Together they explored the living room, the dining room, the pantry, and the four large bedrooms. They admired the freshly painted walls and the large windows in each of the rooms. Then they went outside to see the barn, admiring the spotless floor, white walls, and new pens. "Soon our fine black-and-white cattle will



Farmhouses and barns on the Northeast Polder. The Himpers' new farm looks much like this. The barns are prefabricated — the parts are made in a factory and need only to be fitted together here.

be here," said Father. "Then it will really be a farm."

The farm was 70 acres in size and would be used for mixed farming; that is, both cattle and crops would be raised. Already Father was making plans. This first year

he would divide his land into different sections for growing potatoes, clover, peas, beans, and grass. In a few years he would try growing sugar beets.

DO

1. Cut a square of cardboard the same size as this square.



Using this square and the information below, make a plan of the Himpers' new farm. Let the square represent 1 acre.

How Father Will Use The Land

Buildings	1 acre
Potatoes	5 acres
Clover	30 acres
Peas	7 acres
Beans	7 acres
Grass	20 acres

Total	70 acres
-------	----------

2. How many acres of land is your family's property?

3. In your notebook sketch a floor plan of the Himpers' home. Remember that it has two storeys.

4. What materials have been used to build the home?

Why Is the Sea an Enemy?

Dirk and Anneke received a letter from their cousin Margriet, who lives in Montreal. She wrote: "Our grade four class is studying far-away lands this year. I have chosen to do a project on the Netherlands, and there is something I would like to ask you. I know that the Dutch use

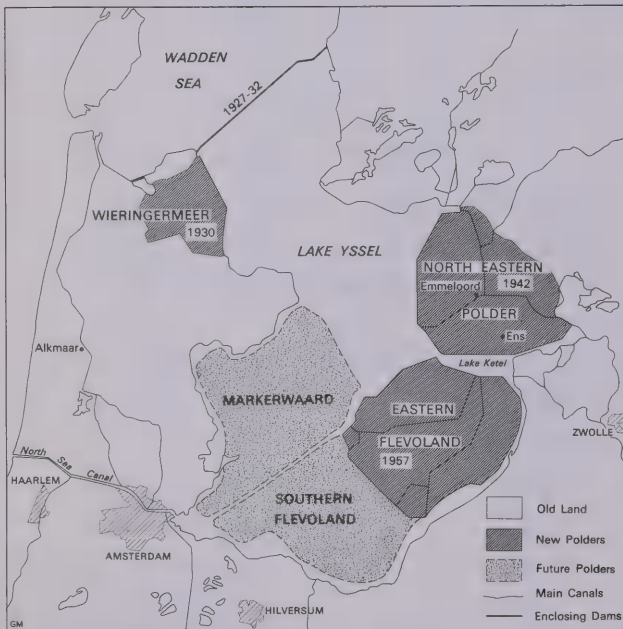
the sea to fish in, and for ocean travel and trade. If you use the sea so much, how can it be an enemy?"

It was decided that Father should write the answer for Margriet. Here it is.

About 1000 years ago there was a fresh water lake in the north of the Netherlands. Sand bars kept it from being joined to the sea. A heavy storm caused the sea to break through the sand wall, and the lake was gone. In its place was the Zuider Zee, which remained a salt-water sea until 1932. Then a large stone and earth wall, called a dike, was completed. It shut out the sea. Thanks to the inflow of fresh water from the Yssel River, in time we had again a fresh-water lake, Lake Yssel.

This lake is becoming smaller and smaller as new polders are made in it. I have drawn a map so that you may see what has happened.

Figure 4. Uncle Jan's map of Lake Yssel



DO

1. Find the polder that the Himpers family lives on.
2. How many years did it take to build the dike to shut off the sea from Lake Yssel? (Construction was begun in 1927.)
3. What are the names of the polders that will be made soon?
4. When was the Northeast Polder finished?
5. What problems would there be in building a dike?

The Great Dike. Lake Yssel is on the right. Which way is the wind blowing?

The Great Dike

The thin line on the map does not tell you much about the Great Dike. I was a young boy when it was finished, and I shall never forget that last hour. I was on a barge with my father. What excitement! An opening that had been twenty miles wide was now only twenty yards wide! The water poured out to sea through the narrow opening at a very fast rate. Huge boulders, when dropped into the water, were carried off like pebbles. Steam shovels lifted loads of rock from barges and dropped them, tons at a time, into the opening. As the opening became smaller, the water ran faster. Shovel-full after shovel-full of rock was dumped into the gap. Finally, one last load was lifted into the air and dumped. The water boiled up against

the rocks, turned frothy white, then fell back and became calm. The gap was closed!

Many years of work lay ahead. When the Great Dike was finished, it had a splendid highway, a bicycle path, and a sloping grassy bank on each side. Pumps, hard at work, gradually lowered the level of the new lake, and within a few years the lake water was fresh, and work had begun on the polders.

There will be many more "last moments" before all the work is completed. Dikes have to be built around each polder before it can be drained; and even when we think that modern ways and machinery have the sea safely locked out, we may be disappointed.

In 1953 we had a terrible flood. The winds blew. The rains fell. The tide was

Closing a dike



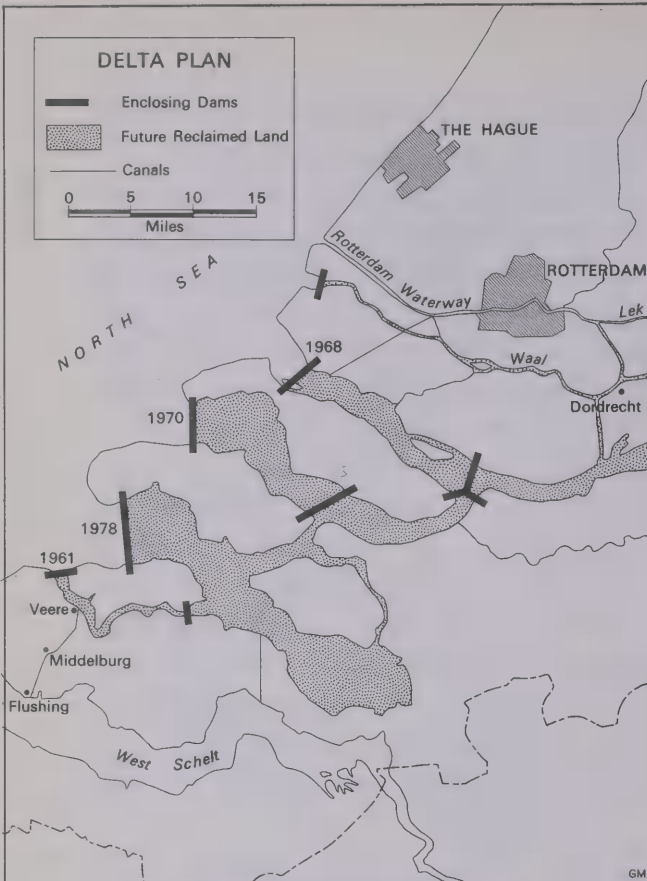
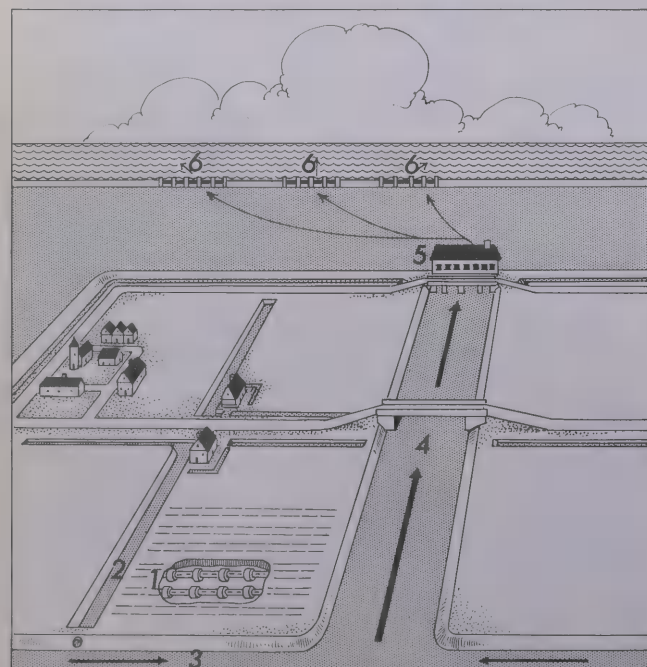


Figure 5. Uncle Jan's second map

Figure 6. Plan of polder drainage. Water is carried to the sea by way of (1) tile drain, (2) drainage ditch, (3) main ditch, (4) canal, (5) pumping station and Lake Yssel, (6) discharging gates (sluices) in Great Dike.



high, and the angry sea poured over the tops of many of our country's dikes. Cracks appeared in the dikes. Parts of them broke up, and the sea pushed in. Eighteen hundred people were drowned. Farm animals died. Buildings collapsed. More than a hundred towns and villages went under the sea! In many places we had to start all over again. It has been said that at that time the Great Dike paid for itself in one night!

The greatest flood damage in 1953 was in the south of our country, where long arms of the sea reach inland. The Dutch have started to do something about that, too. On the second map I have drawn you will see how they plan to shorten their seacoast, protect much land from flooding, and gain a large supply of fresh water at the mouth of the Rhine River. There is also another exciting possibility — the draining of the Wadden Sea in the north. I believe it will be done, but I do not know when. This is something for you and your Canadian friends to watch for as you become young men and women.

Your loving uncle,

Jan

DO

1. What were windmills used for?
2. Why must pumps be kept running in Lake Yssel even after the dikes are completed?
3. On this plan of a new polder trace the route of the water from the fields to the sea.

Special bicycle paths are built alongside many highways. What does the sign mean?



A Trip to the City

FACTORS
▼▼▼

The teacher in the school at Ens was very eager for the children to learn something about the city. He told them of the large factories, offices, ships in the harbours, and thousands of people rushing home every evening. The children sat and listened but could not quite believe all the teacher said. They knew little more than what they had seen in the village or on their way to and from school on their bicycles.

Dirk told his father about it. A few days later Father told the family, "Next Friday we shall go to Amsterdam. I have written to Aunt Beatrix and she would like us to stay with her for the weekend."

Anneke and Dirk carefully packed a small case, and Father gave careful instructions to a young farm worker he had

hired. It is not easy for a dairy farmer to take even one day off!

Early on Friday morning they walked to the village and caught the bus to Meppel. The polder roads soon changed to dike tops, and finally they reached a highway. Cars sped by at top speed while cyclists used a bicycle path that ran along the side of the highway and several feet below it. Sometimes lines of trees were between the highways and bicycle paths.

At Meppel the family boarded an electric train, from which they watched the countryside rush by.

The train stopped often, for the villages were close together. As they approached Amsterdam the family began to see larger canals with many boats and barges moving on them.

"What beautiful colours!" exclaimed



The family saw great fields of tulips from the train window.

Anneke. She had seen a large canal boat completely loaded with flowers.

Mother said that these came from huge gardens where tulip bulbs and other plants were grown.

"Your mother spent her childhood in the middle of the flower country. It is not far from Amsterdam and is called Aalsmeer," said Father.

"Is Aalsmeer the place with all the glass greenhouses?" asked Dirk.

Father nodded, and Mother added, "You cannot imagine the beauty of the

flowers in the spring. It is a pity that such beauty cannot last. We enjoy the flowers while they last. My father, your grandfather, worked in these gardens and used to tell me how important a business it was. It is even more important today than when I was a girl. In those days our market was no further than the distance our boats could take the flowers. Now flowers can be loaded on planes and delivered to distant cities in a few hours.

"What most people do not know is that most of the flowers are never sold. They are cut down so that the bulbs can be sold. Selling bulbs to other countries is the main business of the flower industry.

"Your cousins in Canada know about tulips from the Netherlands. Ottawa, the capital city of Canada, displays Dutch tulips every spring. So do many cities in the United States."

DO

1. How did the Himpers' trip differ from the trip a Canadian farm family might make to the city?
2. Why were there special paths built for bicycles?
3. What preparations had to be made before the family left the farm?
4. Aalsmeer is the centre of what industry?



The greenhouses in Aalsmeer

In Amsterdam

FACTORS
▼▼

In mid-afternoon they entered Amsterdam and were met at the station by Aunt Beatrix. She lived in an apartment building on a side street along which ran a small canal, crossed here and there by small arched bridges.

The next day the family borrowed some bicycles and set out to explore the city. Their road took them across a wide river which opened into a large basin. Here Dirk's eyes nearly popped out of his head. Never had he seen such a large ship! It looked taller than a huge building. The docks beside it were piled high with different kinds of goods. The ship was an ocean freighter being loaded for another country. Dirk noticed hundreds of boxes. "Those look like egg crates," he said.

"They could be," answered Father. "We sell many eggs to other lands. In fact, I heard an announcer on the radio say that the Netherlands exports more eggs than any other country in the world. We also sell huge quantities of cheese and powdered milk to other countries."

They had stopped for a rest and Father explained, "You will not be able to see everything. Ships are loaded this way every day. Some unload goods from other countries (our imports). Some are loading



Small arched bridges crossed the canals near Aunt Beatrix's apartment.

goods to take to other countries (our exports). Those buildings over there are factories. They receive materials that they need from other lands and make things to be sold to the Dutch people or sold to other countries. That large building is a clothing factory, and that one is a sugar refinery. From sugar and cocoa which we import we make chocolate candy which we export. Much of it goes to Canada.

"Of course, Amsterdam is only one city. The Netherlands has many more. Thousands of people are employed in building

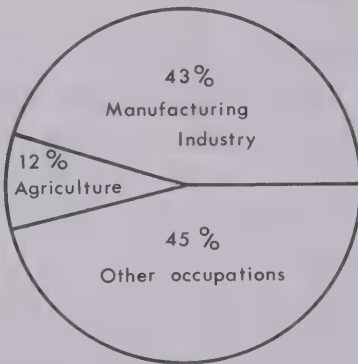
Amsterdam Harbour

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Figure 6. Occupations in the Netherlands



The family travelled down long narrow streets such as this one.

many kinds of ships — barges, ships for the Dutch Navy, tugs, fishing boats, sailing boats, and many others. Ship-building is a manufacturing industry, and is one of the most important industries of the Netherlands. The Dutch also make cars, bicycles, and aircraft. To help run machines they import oil. We have some of the largest oil refineries in the world. I could name many more of our industries, for many thousands of our people make their living working in industry."

Figure 6 is a circle that shows the main occupations in the Netherlands. The 43 means that 43 out of every 100 workers work in the manufacturing industries. The 12 means that 12 out of every 100 workers work in agriculture.

DO

1. What does the 45 in Figure 6 mean?
2. What jobs would be included in "other occupations"?
3. Copy this chart into your notebook and complete it.

NETHERLANDS' TRADE

IMPORTS	EXPORTS
?	?

4. List the industries that Father and Mother talked about.

The size of the ships at the ship-building yard amazed Dirk.

**Five o'clock traffic rush
in Amsterdam**



Their rest over, the Himpers bicycled on.

Docks and factories were left behind, and different buildings took their place. These were large office buildings. Suddenly the doors of the office buildings opened and hundreds of people poured out. It was closing time! The streets were suddenly filled with bicycles. There seemed to be thousands of bicycles!

The Himpers headed for home, their route taking them across several canals which cut through the city in many places.

On Saturday Anneke, Mother, and Aunt Beatrix went shopping and to the theatre. Dirk and his father went to a huge stadium to see a soccer game.

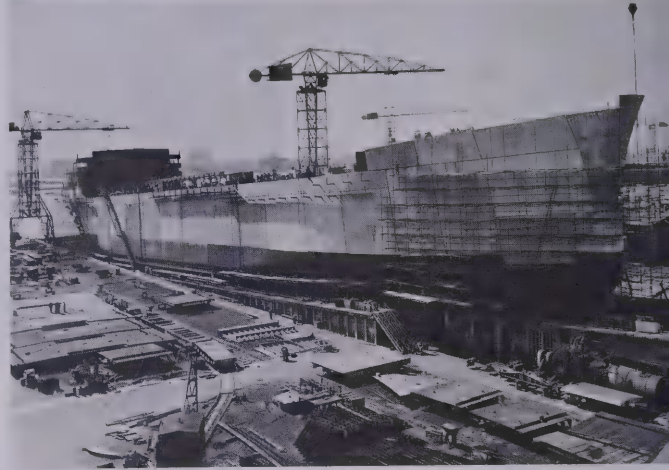
Anneke sent a postcard showing this picture of a canal street in Amsterdam.





Modern buildings in Amsterdam

A postcard Dirk sent his cousin showed this picture of shipbuilding in Amsterdam.



Saturday evening they all sat in the living room chatting. "I never knew so many people lived in the city," said Dirk. "I think I understand why, though. We have to import a lot of food because we can't grow enough here for all our people, and this means there must be many ships and people to handle the goods. Ships have to be built, and farmers need more and better machinery. Many people are needed to make these things. Also people are needed in the city to work in offices, drive buses, pack foods, make clothing, work in stores, and build things. And all these people have families. They need churches, schools, hospitals and many other

services. Soon we have so many people working in cities that the farms cannot grow enough food, and we have to import still more!"

DO

1. What sights did Dirk and Anneke see in the city that they would not see on the farm or in their village?
 2. What kind of transportation did many city people use?
 3. What occupations are there in Amsterdam?
 4. What are "services?"
-

Home Again

After church on Sunday the Himpers were ready to return home. Before they left, Anneke and Dirk sent postcards to their cousins in Montreal.

On Sunday, downtown Amsterdam was very quiet. The factories and docks were deserted, and there were few people at the station. Soon the city was left behind, and the flat polder land was in sight. Many people had cycled into the country to enjoy its beauty. White sails in the distance showed that many people were enjoying sailing on the lakes.

Home at last, the children rushed into their rooms to make sure everything was as they had left it. Father went to the barn to check on his animals. Mother



Sailing is a favourite sport.

warmed some milk for hot cocoa. Everyone was glad to be home!

SUMMARY QUESTIONS — 9

1. What is remarkable about the *land* in the Netherlands?
2. How have the Dutch people dealt with their land problem?
3. How does the Himpers' farm on the Northeast Polder differ from farms in your community? In what ways is it similar to farms in your community?
4. If you went to the Netherlands what would you be most interested in seeing, and why?

USING THE INDEX

You may often need to look for information on particular subjects in your geography text. In most text books you will find an *index* at the back. Here the subjects described in the book are listed in alphabetical, or "a, b, c," order, with a list of the pages in the book on which each subject is described.

The Index in any book tells you

the	the
subject	page

canyon, 268

caribou, 68

or the subject, the page, and some more information:

cattle

in Argentina, 193, 195, 198-199, 209,
215-216, 218, 219, 220

in California, 265, 266

in Ecuador, 37, 53

in India, 161, 162, 164, 169

in the Netherlands, 230, 239

in Norway, 98, 108, 112, 118

You may not always find the exact word you are looking for. If you do not, think of other words that mean the same and look for those. For example, if you want information on fruit-growing in California, you may not find "fruit-growing" in the Index, but you may find this:

farming

in Argentina, 199-200, 202

in California, 267-268, 278, 280, 286-289

in Ecuador, 40-41, 52-53

in India, 163-166, 167-171

in Norway, 114-116, 118

in Saudi Arabia, 131-133

If you wanted to learn about the axis of the earth and could not find "axis" in the Index, what other word might you look up?

Here is part of an Index. Read it carefully, and then answer the questions below.

east-west lines, 29, 91, 125

Ecuador (EK-whu-dawr), 29-57, 271

eider ducks (EYE-d'r), 94

Eleven-Cities Race. 235-238

equator, 29

Eskimos, 61, 68, 88

estancia (es-TAHN-s'yah), 189, 190

eucalyptus trees (YOO-kuh-LIP-tus),
191, 262

Eurasia, 30, 88

DO

1. Which page has information about the equator?
 2. Does the Index give information about elevation?
 3. On which pages will you find information about Eurasia?
 4. Which words have a pronunciation guide?
-

Here is another part of the same index.
Read it and answer the questions below.

houses

in Alaska, 66-67
in Argentina, 190, 191-192, 200-202,
213
in California, 262-263
in Ecuador, 34, 35
in India, 160
in the Netherlands, 229, 242
in Norway, 95
on a Pacific Island, 10

in Saudi Arabia, 127
See also house furnishings

DO

1. For how many countries does the book give information about houses?
 2. Under what entry would you look to learn about furniture in these houses?
 3. For which country does there seem to be the most information?
 4. Which pages would you turn to to find out the most in one section about houses in Argentina?
-

Picture Study Supplement

Now that you have learned a good measure of geography, test your knowledge on the pictures on the following pages. Some questions you may find difficult. These are best answered by discussion with your class or teacher.

The Picture Study Guide is repeated here as a reminder to you.

PICTURE STUDY GUIDE

You will often be asked to describe what you see in pictures. The following list of questions and clues will help you see things in pictures that you might otherwise miss. Remember to give your answers, whether written or spoken, in complete sentences.

1. What kind of land do you see? (Flat, hilly, mountainous, etc.)
2. What features do you see? (Rivers, lakes, bays, cliffs, etc.)
3. What use of the land is seen in the picture? (Forestry, market gardening, mixed farming, etc.)
4. What kinds of transportation do you see in the picture? (Railways, roads, ferries, ships, etc.)
5. What kinds of work might be done in this area? (Fishing, factory work, railroad work, farming, mining, etc.)
6. What kinds of recreation would this area offer? (Hunting, fishing, hiking, boating, skiing, etc.)



Top

1. Why is this harbour safe from storms?
2. Which dock would small boats use for loading supplies from the town's stores.
3. Explain why large ships would generally use the warehouse dock.
4. Find where a ship would go for repairs in a "dry" dock, for fuel oil.

Bottom

1. Follow the Picture Study Guide.
2. What is the use of the small windmill?
3. Why is it safe in these canals to load the barges so deeply?
4. Why is the house surrounded by trees?
5. What is the purpose of the bank by the water's edge?





Top

1. From a careful examination of the house, tell what you can about the climate.
(Study the roof, windows and porch.)
2. Why is the house raised off the ground?
3. What is the farmer doing?

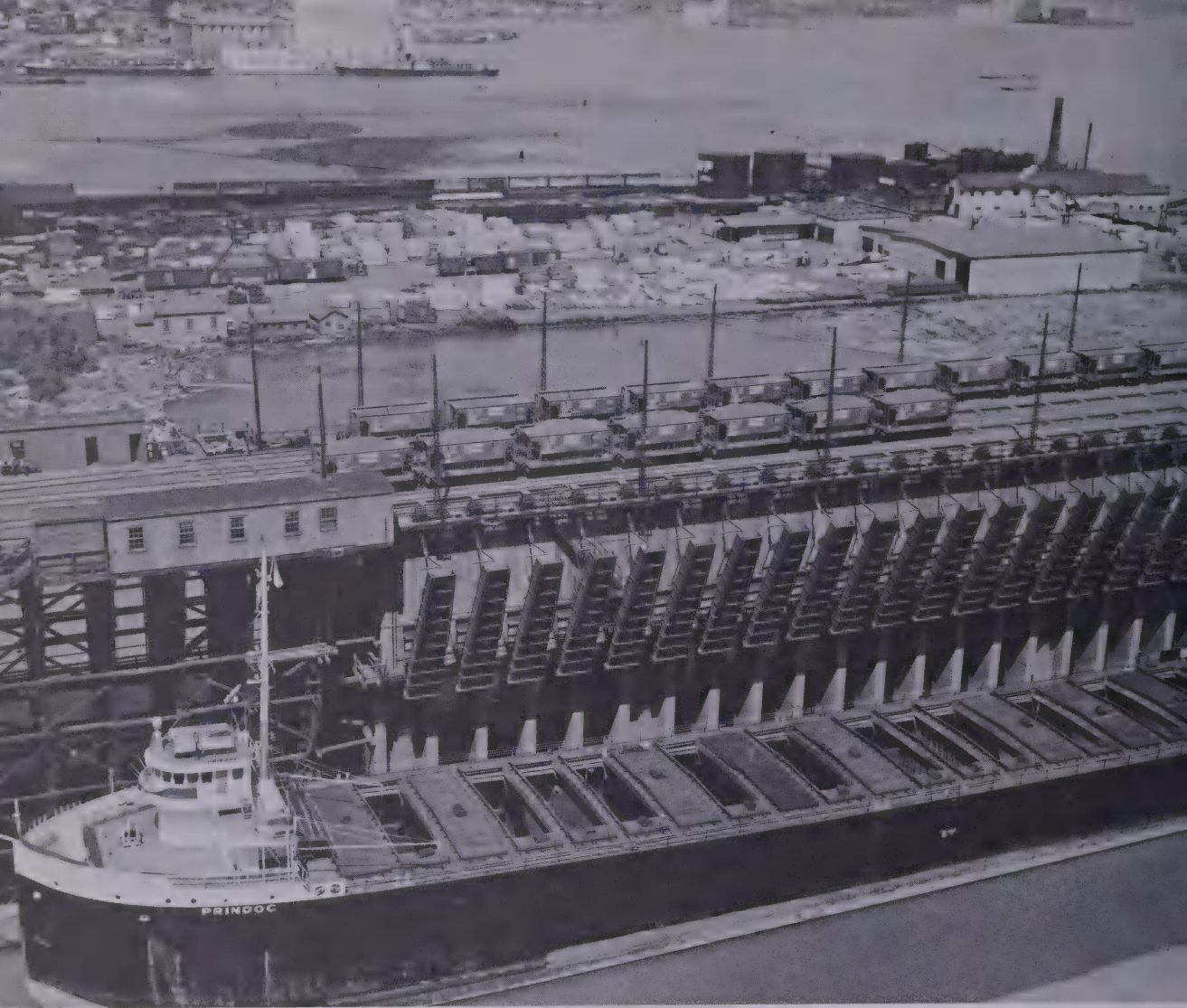


Left

1. What crop is being planted here?
2. How deep is the mud?
3. What can you tell about the weather?
4. Would you like this work? Give your reasons.



1. Follow the Picture Study Guide.
2. In this picture of a mine in northern Canada, find the mine buildings, the miners' bunkhouses, the workshop buildings, and the waste rock pile.
3. What is in the tanks? Why are they near the lake?



1. Explain how the “Prindoc” is loaded with iron ore.
2. How do we know that loading has not yet started?
3. What other industries are using this harbour?



1. What household machine is being put together in this factory?
2. Using this picture explain the words “production line.”
3. Why must everyone work at the same speed?
4. What do you think are placed in the boxes beside each worker on this production line?
5. Would you like to work in a factory like this? Give reasons for your answers.



1. Follow the Picture Study Guide.
2. What crop is probably grown here?
3. Explain the lines in the fields.
4. Find two pictures in Chapter 5 which show how the piles of loose straw at the bottom of the picture were made.



1. Follow the Picture Study Guide.
2. Using this picture, explain the term oasis.
3. How can you tell that the land is irrigated?
4. What can you tell about the climate here?



1. Follow the Picture Study Guide.
2. Draw a simple map of the land shown in this picture. Include a highway, a farm road, a river, a water storage pond, a farmhouse, barns, an implement shed, and some granaries.
3. What causes the lines in the fields?
4. In what season of the year was this picture taken?
5. Why has the farmer planted so many trees?

Glossary

The pronunciation key is on page 204.

- acre:** an area of 4840 square yards (approximately 69 yards square).
- Altiplano:** ■ high plateau of the Andes Mountains in Bolivia and Peru.
- Arctic Circle:** the east-west line around the earth at which the sun is seen for twenty-four hours on June 21.
- ataatak** (Eskimo: ah-tah-TAHK): Eskimo word for father.
- bannock:** home-made bread, flat and round like ■ pancake.
- bay:** a small body of water partly surrounded by land.
- bazaar:** a market place or street where merchants display their goods outdoors.
- bestefar** (bes-te-FAR): Norwegian word for grandfather.
- bestemar** (bes-te-MOOR): Norwegian word for grandmother.
- breed:** ■ variety of one kind of animal; e.g. *Jersey* cow, *Persian* cat.
- bullock:** an ox or steer.
- bund:** a man-made earth bank.
- burnoose** (bur-NOOS): a one-piece cloak-like cover and hood.
- cacao:** a tree from whose seeds cocoa and chocolate are obtained.
- canal:** a man-made watercourse.
- canyon** (KAN-yun): a deep valley with steep rocky sides.
- cape:** ■ piece of land extending out into the sea.
- capital city:** the city of a province or country where its government meets and where the departments of government carry on their business.
- caravan:** a group travelling together for safety, especially through a desert.
- cassava:** a plant with a tuberous root; flour or bread made from it.
- chadar** (CHAD-ahr): a shawl.
- channel:** a natural or artificial bed of running water; a body of water joining two seas.
- char:** a trout-like fish.
- chuno** (CHOO-no): potatoes that have been crushed to remove the water and then dried.
- clapboard:** overlapping horizontal boards covering the sides of ■ house.
- climate:** the year-round weather of a place.
- coast:** the land along an ocean or sea; the seashore.
- continent:** one of the seven great land areas of the earth: North America, South America, Asia, Europe, Africa, Australia, and Antarctica.
- contour line:** a line on a map joining places that are the same height above sea level.
- corrugated:** having a wave-like or folded surface.
- cricket:** an outdoor bat-and-ball game played between two teams of eleven players each.
- crutching:** cutting away the wool from around a sheep's tail.
- cultivate:** to prepare and use land for growing crops.
- dal** (dahl): a crop of peas or lentils.
- delta:** land formed at the mouth of ■ river from soil carried by the river.
- desert:** an area of barren land having little or no rainfall.
- dike:** a bank built to control or hold back water.
- disinfectant:** a substance used to kill germs.

dhoti (DOH-tee): a loincloth worn by Indian men.

dock: a place for loading or unloading ships.

drenching: giving medicine to sheep to protect them from disease.

dysentery: a disease of the intestines that causes severe pain.

eggplant: a vegetable with a large, purple, egg-shaped fruit.

eider: an Arctic duck.

equator: the east-west line around the earth midway between the poles.

eucalyptus (YOO-kuh-LIP-tus): a family of tall trees common in Australia.

evergreen: having green leaves all year; e.g. pine, spruce.

farvel (far-VEL): Norwegian for good-bye.

fertile: fruitful, giving crops easily.

fiesta: a public celebration, often held on a saint's day; holiday.

fiord (fyawrd): a long, narrow arm of the sea with high banks or steep cliffs on both sides.

fjeld (fyell): a high rocky plateau.

fodder: food for the stall-feeding farm animals.

foot-rot: a disease of sheep and cattle.

galabia (gah-lah-BEE-ah): a wide outer garment worn in India.

gamcha (GAM-chah): a 3 foot by 4 foot piece of cloth used as a towel, turban, or mat.

generator: a machine for making electricity.

gourd: a large fruit with a tough rind. It can be hollowed out and used as a bowl or bottle.

gulf: a body of water partly surrounded by land, narrower at the mouth than a bay.

harbour: a place of shelter for ships.

hari (HAHR-ee): a round, narrow-mouthed clay pot.

highland: land that is far above sea level.

hills: land with many slopes and valleys, usually lower than a mountain.

Hindi: the official language of India.

horizon: line where the sea and land appear to meet the sky.

ice-cap: covering of ice found all year round on high mountains or near the poles.

ichu (EE-choo): a kind of grass found in the upper Andes used for animal food and for thatching roofs.

inlet: a small arm of a sea or lake.

irrigate: to water land artificially.

island: a piece of land surrounded by water.

isthmus (IS-mus): a narrow strip of land connecting two larger pieces of land.

Jamindar (zham-IN-dahr): a land owner in India.

kantha (KAN-tha): a quilt.

kayak (KY-ak; Eskimo: KRAY-ark): an Eskimo canoe made of skins stretched over a frame of wood or bone.

kerosene: a fuel oil used in lamps.

komatik (koh-MAT-ik; Eskimo: kram-oot-EEK): an Eskimo sleigh.

kudlik (Eskimo: KROOD-leerk): an Eskimo seal oil lamp.

lake: an inland body of water.

lentil: a vegetable of the pea and bean family.

levee: a bank made along the side of a river to prevent floods.

lowland: a plain which is not very high above sea level.

lutfisk (LOOT-fisk): fish soaked in lye for several days before cooking.

malaria: a disease spread by one kind of mosquito.

manioc. See cassava.

minaret: a slender tower attached to a mosque.

mineral: a substance obtained from the earth, such as coal, silver, oil.

mirage: a sight which seems to be real but is not, such as water on the desert.

monsoon: a seasonal wind in southern Asia, especially in the Indian Ocean, blowing from the northeast from October to April and from the southwest from April to October; the rainy season caused by this wind.

mosque (mosk): a building used for public worship by Mohammedans.

mountain: a mass of land much higher than the surrounding land and rising steeply from it.

mouth (of a river): the place where the water from a river enters an ocean or lake.

muezzin (moo-EZ-in): a Mohammedan crier of the hour of prayer.

nomads: people who have no settled homes but move from place to place in search of food or pasture for their animals.

oasis: a fertile spot in the desert where there is water.

ocean: one of the large bodies of salt water on the earth.

okapi: an African animal something like a giraffe but smaller and with a shorter neck.

panchayat (PAN-chey-at): a village court or committee in India.

pass: a gap between two mountains.

peak: the top of a mountain.

peninsula: an area of land nearly surrounded by water but connected to a large piece of land on one side.

pier: a landing structure built out from the shore; a support for a bridge.

plain: an area of fairly level land.

plantation: a large farm or estate where one particular crop, such as rubber, cacao, or cotton is grown to be sold chiefly elsewhere.

plateau: an area of fairly level land surrounded by lower land.

polder: land that was once under water but is now drained and protected by dikes.

poncho (PON-cho): a blanket-like cloak with a slit in the middle for the head.

port: a harbour where trade is carried on.

radar: an instrument for learning the position of distant objects by the radio waves which they reflect.

rainforest: a thickly-growing forest of large trees and undergrowth found in hot, wet regions near the equator.

range: a line of mountains.

reef: a ridge of rocks at or near the surface of water.

refinery: an industrial plant where substances, such as sugar, oil, and metals are purified.

ridge: a long, narrow hill or mountain.

roti (ROT-ee): home-made bread that looks like a pancake and is eaten in India with molasses or curry.

sakia (SAK-yah): a water wheel.

sand bar: a bank of sand near the surface of water.

sand dune: a mound, hill, or ridge of sand built by the wind.

saree (SAH-ree): a length of cotton or silk wrapped around the body and worn as the main garment by Indian women.

sea level: the average level of the sea used as the starting point for measuring height of land.

shadoof (SHAD-oof): a device for raising water from wells.

share-cropper: a farmer who rents land and pays for it with part of the crop.

sheik: the head or chief of an Arab tribe, family, or village.

sickle: a tool with a short, curved blade used to cut grass and grain crops.

silt: earth carried and dropped by moving water.

siqiniq (sik-IN-ik; Eskimo: see-KREEN-eerk): the sun.

soroche (sor-OCH-ee): dizziness and upset stomach caused by high altitudes; altitude sickness.

source (of a river): the place where a river begins.

spice: vegetable substance, such as pepper, cloves, cinnamon, used to flavour food.

strait: a narrow channel between two large pieces of land.

surf: foam and disturbed water where waves break on shore.

swamp: a wet, marshy area.

timber line: a line beyond which trees will

not grow because of the coldness of the climate.

tributary: a small river or stream which empties into a larger one.

tropical: belonging to the hot regions lying approximately 1000 miles each side of the equator.

Tulsi (TOOL-see): a holy tree around which Hindus worship.

turbine: an engine in which blades are turned by the force of water, air, or steam.

valley: lowland between hills or mountains.

vegetation: plant life.

wharf: a platform where ships may be moored to load or unload.

Index

Pronunciation is shown for the more difficult words in the index. Each word is spelled as it sounds. The reader should pronounce the syllables in the simplest and most obvious manner. When he sees *al*, for example, he should pronounce the *a* short (as in *hat*). In the syllable *il* the *i* is short (as in *sit*). In *em* the *e* is short (as in *bed*). In *um* the *u* is short (as in *mud*). The long-*i* sound is usually shown with *y* or *eye*. For example: pilot (PY-lut); island (EYE-land). The long-*u* sound is spelled *yoo*. For example: unite (yoo-NITE). The syllables to be accented are printed in capital letters. For example: canyon (KAN-yun).

Map or diagram references are shown in italics.

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